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ORIGINAL ARTICLES.

RADICAL CURE OF INGUINAL AND FEMORAL HERNIA.

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The object of this paper on the radical cure of inguinal and femoral hernia is to place on record the few cases it has been my good fortune to have operated upon; to speak of some of the complications we are apt to meet with in the course of the operation; to provoke a discussion on these by which we are able to learn the views of experienced surgeons who probably have had more experience with this operation than myself; also to learn their mode of operating and their criticism of the operation. The greater number of operations I have done have been for reducible hernia. At the present status of surgical science, the question of the radical cure in cases of operation for strangulated hernia, I think by the majority of operators at least, would receive a careful consideration, and only in the event that the patient's condition would not permit of further manipulation, would the operation be completed, as it was formerly done without attempting the radical cure. The operation for the radical cure of hernia has been until recently confined largely to the inguinal variety, but now is being practiced upon femoral, in fact upon all varieties of hernia.

The different operations from which we can select are Macewen's, Barker's, Banks', McBurney's, and others. Macewen's operation consists, as you well know, of exposing and freeing the entire sac when, with the contents reduced, the sac not having been opened, it is puckered up and reposited in the abdomen. The manner of closing the canal by Macewen is quite ingenious; the conjoined tendon is penetrated in two places by the threaded hernia needle—first from without inwards near the lower border of the tendon, and second from within outwards as high as possible on the inner aspect of the canal. One single thread is withdrawn from the point of the needle and the needle, with the other extremity of the thread, is removed, the loop presenting upon the abdominal aspect of the tendon. That portion of the stitch which comes from the lower border of the tendon is threaded by a second needle and, guided by the index finger placed in the inguinal canal, is introduced from within outwards on a level with the lower stitch in the tendon through Poupart's ligament and the aponeurotic structures of the transversalis, internal and external oblique muscles. The needle is now freed from the thread and withdrawn and again threaded with the suture which protrudes from the upper border of the tendon when it is introduced from within outwards, on a level with the upper stitch in the tendon, through the transversalis, the external and internal oblique muscles. It is then freed from the thread and withdrawn. The same stitch may be introduced lower down the canal if thought desirable, when the ends of the respective sutures are drawn tightly together and tied. Macewen also brings together the pillars of the external ring.

Barker's method consists in exposing and freeing the neck of the sac in the inguinal canal, opening it some little distance to the distal side of the upper end of the canal, seeing that all the contents are reduced, tying it off to the proximal side of the opening made in it, and dividing it below the ligature, using the stump to occlude the internal ring. The walls of the canal are brought together by interrupted sutures at a distance of ¼ inch apart, passed from within outwards and appear upon the surface of the external oblique aponeurosis, care being taken not to include the spermatic duct. These sutures, when tied, are cut off short and allowed to remain. The skin and superficial fascia are brought together by interrupted sutures.

Ball's method consists in exposing and isolating the sac, grasping its neck after the contents have been reduced (opening the sac if necessary to complete the reduction) with the broad catch forceps, and gradually twisting it until it is quite tight; then a stout catgut ligature is passed round the twisted sac as high up as possible, tied tightly and the ends cut off short. The next step is to pass two sutures of aseptic silk through the skin at a distance of about an inch from the outer mar-

gin of the wound, through the outer pillar of the ring and the twisted sac in front of the catgut suture, then through the inner pillar of the ring and skin upon the inside; the sac is now cut off in front of the sutures, they preventing it from untwisting. By this operation it is claimed that there is no resulting depression at the internal abdominal ring, but on the contrary, that the peritoneum is more prominent here than elsewhere in the immediate neighborhood, the peritoneum around the site of the internal ring being thrown into a number of radiating folds. Dr. Ball reports a case on which he operated for a very large right inguinal hernia and in which there was an incomplete inguinal hernia (bubonocele) upon the left side, where the latter hernia was cured by twisting the hernial sac of the side operated upon.

Banks' method consists in exposing and freeing the entire sac, opening it to make sure that all its contents are reduced. The sac is then pulled well down, tied up as high in the canal as possible before removing it. The next step consists in bringing the pillars of the ring together by two or three silver wire sutures which are left in position.

McBurney's method consists in exposing and freeing the sac throughout, when it is securely tied with a stout catgut or silk ligature at the internal ring, the sac being always opened to demonstrate that no portion of its contents remain unreduced, also to enable the operator to insert one or two fingers through the neck and a little way into the peritoneal cavity. This is done to positively guard against the return of a piece of the intestine or omentum into the sac during the application of the ligature. The ligature is tightened on the operator's finger and tied very tightly as the finger is withdrawn, leaving a pedicle of sufficient length to prevent slipping of the ligature; the rest of the sac is cut away. In preparing the wound for packing, from four to eight stout silk or catgut sutures according to the size of the wound are passed through the tissues which form the upper wall of the wound, namely: the conjoined tendon, the aponeurosis of the external oblique including the inner pillar of the external ring, and the superficial fascia and skin, the skin being carefully and deeply inverted while each stitch is tied tightly. The same number of sutures is passed through the tissues forming the lower wall of the canal, namely: the skin, the superficial fascia, and Poupart's ligament including at the lower part the outer pillar of the external ring; these are also tied tightly, exercising the same care to invert the skin. The object of these sutures is to positively secure patency of the wound for the formation of granulations from the bottom. Next, to lessen the width of the wound, two or more heavy stitches are carried across it, passed deeply through the skin and superficial fascia, these latter relieving the tension on the edge sutures so that they do not cut their way out too soon. The two last or tension sutures are tied over pledgets of iodoform gauze to avoid ulceration. The wound is now carefully irrigated, dusted with iodoform throughout and firmly packed with iodoform gauze. The portion of the wound beyond the canal is sewed up without packing, catgut or other drainage being inserted at the lower end if required. The packing of the wound after having lessened its width by the introduction of the tension sutures secures firm union, both from below upwards and from above downwards. By this union we obtain a firm cicatrix which offers the best possible barrier to the return of the rupture. By forcing the packing well up into the angle of the wound we have a condition of the peritoneum at and around the site of the internal ring the least favorable for the return of the hernia.

The operation which I have always performed with one exception, has been that of Barker, modified only in the introduction of the sutures (after the manner of Macewen) for closing the canal, and is as follows: Having exposed the sac throughout the inguinal canal it is carefully separated from the spermatic cord and the transversalis fascia, the dissection being carried well up to the margin of the internal ring, when a long aseptic silk ligature is passed beneath it a short distance from the ring. The sac is now opened, thus enabling me to see whether its contents are entirely reduced after applying taxis, and finally to complete the reduction by separating any adhesions that may exist between the contents of the sac or the contents themselves. If the sac contains omentum which is irreducible from the presence of adhesions, after having separated these I tie the omentum off with catgut ligatures and cut it away, returning the stump to the abdomen. After having completed the reduction of the contents I tie the ligature, which is placed beneath the neck of the sac, as high up as I possibly can. I now thread two large staphylorrhaphy needles, which I have had made especially for this purpose, with either end of the ligature and transfix the abdominal walls from within outwards, above and to either side of the position of the internal ring, including only, of course, part of the transversalis fascia, the transversalis and internal oblique muscles and the aponeurosis of the external oblique muscle. The ligatures now present upon the upper surface of the aponeurosis of the external oblique, upon which they are tied down firmly and cut off short, the stump of the sac occupying the site of the internal ring. The remainder of the operation consists in stitching the walls of the canal together, first transfixing the lower edge of the conjoined tendon with two long straight needles from below upwards, threaded at either end of a single aseptic silk lig-

ature, care being taken to avoid the deep epigastric artery, the index finger being used to locate and protect the artery, at the same time to raise the lower edge of the tendon. The needles are carried across the canal and made to transfix Poupart's ligament on a level with the points of penetration of the conjoined tendon. Two or more of these deep sutures are usually required, this depending upon the length of the canal. The sutures are tied down upon the outer surface of the ligament and cut off close (in tying these sutures care should be taken not to make too great pressure upon the cord). Interrupted sutures (aseptic silk) are now introduced to complete the closure of the wound, those approximating the sides of the wound as far as the conjoined tendon, taking in above the skin, the superficial fascia, the aponeurosis of the external oblique, the internal oblique and transversalis muscles where these latter have been divided in exposing the internal ring, and the arching fibres of the internal oblique and transversalis muscle; below the skin, the superficial fascia and the aponeurosis of the external oblique muscle immediately above Poupart's ligament. Those at the extreme lower part of the wound including the skin, the superficial fascia and the aponeurosis of the external oblique upon either side. For drainage I use simply a few strands of chromicised catgut placed beneath the superficial set of sutures. The wound is dressed antiseptically, antiseptic precautions being carried out throughout the entire operation. From the time of opening the sac until it is tied and divided I suspend the use of the bichloride for irrigation, substituting hot distilled water. The superficial sutures only are removed. The patient is kept in bed for six weeks, when he or she is permitted to get up and go around without a truss. In dealing with the sac this operation is like that of Mr. Barker, but differs from Macewen's, Ball's, and McBurney's in that the fundus of the sac is not disturbed. In closing the canal it is very much like that of Macewen. My objection to exposing and freeing the entire sac, is the injury to which the surrounding parts, particularly the testicle, are exposed in the necessary handling which must be called for in the tedious dissection for the dislodgement of the sac, in many cases at least. The latter I think constitutes a very grave objection. I have seen one case of suppurative orchitis follow this procedure. It prolongs the operation and makes it more difficult. The advantage in opening the sac is to satisfy ourselves that its contents are all reduced, also not to return any of the contents to the abdominal cavity in a condition that could favor internal strangulation. Not to open the sac, even if the contents have seemed to have been entirely reduced, I look upon as a dangerous and unwise course to take, particularly as with the advantages of aseptic surgery we are not exposing our patients to any additional risk. By this latter means we cannot be certain that we have completely reduced all the

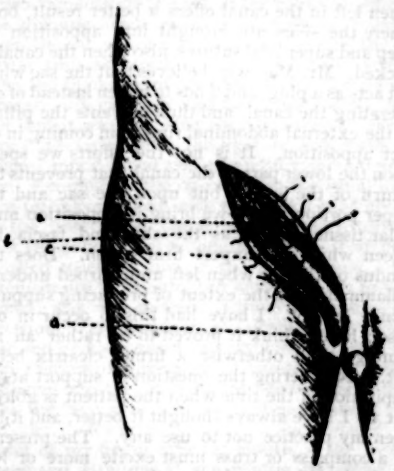

FIGURE 1.—Deaver's Hernial Operation, showing primary and secondary incisions. a, sac of hernia cut and retracted into internal ring, anchored by deep suture 1; b, spermatic cord, etc.; c, sac of hernia, divided from peritoneal portion and lying in the exposed inguinal canal; d, testicle. 1, 2, 3, 4, deep sutures in the divided coverings of inguinal canal. (Drawn by Allen J. Smith, M.D., of Philadelphia.

FIGURE 2.—Deaver's Hernial Operation (peritoneal surface). a, point of retraction of sac at internal ring; b, spermatic cord, etc.: c, sac of hernia; d, testicle; e, femoral vessels. (Drawn by Allen J. Smith, M.D., of Philadelphia.)

contents, having to rely upon our sense of touch, which we must admit is not nearly so reliable as when we have inspected the interior of the sac.

The presence of the sac in the lower part of the canal acts as a plug, it being reinforced by the products of inflammation necessary for the repair of the wound, therefore I consider that the sac when left in the canal offers a better result, both where the sides are brought into apposition by deep and superficial sutures, also when the canal is packed. Mr. Macewen believes that the sac when left acts as a plug, and tends to widen instead of obliterating the canal, and thus prevents the pillars of the external abdominal ring from coming in direct apposition. It is not the efforts we spend upon the lower part of the canal that prevents the return of the hernia, but upon the sac and the upper portion, where we bring in apposition muscular tissue, as well as the skin and fascia, between which we expect firm union. Does the fundus of the sac when left undisturbed undergo inflammation to the extent of producing suppuration? It may. I have had this to occur in one case; here I think it proved to be rather an advantage than otherwise, a firmer cicatrix being left. Considering the question of support at the expiration of the time when the patient is able to get up I have always thought it better, and it has been my practice not to use any. The presence of a compress or truss must excite more or less absorption, thus weakening the parts.

The question of attempting a radical cure of hernia depends on the following points as mentioned by Barker: First, whether the procedures employed are devoid of risk; second, whether they are simple, easy of execution, and capable of wide application; third, whether they fulfil the objects for which they are designed.

What class of cases render the operation for the radical cure justifiable: first, those in which the hernia is complete and the external ring is so large as to make it difficult, if not impossible to apply a truss that will hold the rupture; second, where the hernia is irreducible, this being a form in which it is difficult to obtain a truss to fit accurately enough to prevent the escape of a new portion of the gut, thus exposing the subject to the constant risk of strangulation. In this latter form of hernia the hernial orifice cannot well be other than always more or less patulous. In all cases a hernia is a grave infirmity and exposes the patient to constant danger. This danger, however, providing the hernia can be properly retained by a truss is comparatively slight, if proper care be given to the management of the truss. The inconvenience of an ordinary reducible hernia is that it prevents the subject from taking part in athletic sports; it is also a bar to his entrance into public service without incurring a certain amount of risk. The age of the patient and the size of the hernia should also influence us in deciding upon the radical cure. If the patient is past seventy years, and unless he be of a remarkable physique, with good heart and kidneys, I think it injudicious to advise any interference. Where the hernia is a very old and large one, the abdominal cavity must necessarily have contracted more or less, and, as a consequence, the sudden return of the contents of such a hernia might in itself prove serious. In cases of this character, I would think it well to have the patient in bed some days before the operation with the hernia reduced and retained by means of a large pad and bandages, thus educating the abdominal cavity to the presence of this additional mass and thereby lessening the shock of the operation and favoring an uncomplicated recovery. Patients who suffer from chronic bronchitis, also those who have large flat and flabby belly walls, particularly if advanced in life, are not favorable cases for this operation. In performing the radical cure where the hernia is of the congenital variety we can dispose of the sac in one of two ways; the first is to do as I did in one of the cases I have reported (the way also recommended by Macewen) to divide the sac across in the canal taking care to preserve the spermatic cord, then splitting it longitudinally and behind when the upper portion can be either tied or sutured and the lower portion closed by suturing, thus making a new tunica vaginalis for the testicle. Another way to dispose of it is after opening the sac, to remove the testicle, when it can be treated in the same manner as the sac in acquired hernia.

Case 1. Congenital Hernia.—April 20, 1887, I was asked to see J. A., aged 33 years, a patient in the medical wards of the Philadelphia Hospital, who was suffering from a painful scrotal tumor of the right side which upon examination proved to be a strangulated inguinal hernia. I advised operation but the patient would not consent to this until the following day, when he was transferred to my wards, hurriedly prepared, ether was administered and I proceeded to relieve the strangulation. The sac was exposed throughout and opened, when the hernia was found to be of the congenital variety. The constriction which was in the neck of the sac was relieved and the contents reduced. I disposed of the sac in the following manner: I divided it across in the canal, taking care to preserve the cord. The upper portion I split behind longitudinally, thus allowing me to push the cord out of the way when with a strong catgut ligature passed around I tied it off, in this manner closing the peritoneal cavity; the edges of the lower portion were approximated by a continuous catgut suture, making a new tunica vaginalis. The sides of the canal were brought together by two sets of interrupted catgut sutures, the first, and deep set passing through the aponeurotic and muscular tissue down to the floor of the canal, the transversalis fascia, and the superficial set passing through the skin and fascia. Catgut drain was introduced

into the bottom of the scrotal wound, the sides and edges brought together by interrupted catgut sutures. The patient made an uuinterupted recovery; was kept in bed six weeks.

Case 2.—Aug. 4, 1887, I operated on Mrs. M. for my friend Dr. E. H. Steer. She was suffering from a strangulated femoral hernia of the right side. The sac was exposed and separated throughout after a careful and somewhat tedious dissection; when the sac was opened the contents were found to consist of omentum and small intestine. The former was strongly attached to the wall of the sac by old adhesions; the bowel was free elsewhere except at the neck of the sac, the seat of the constriction, and very dark in color. I next introduced a hernia knife between the neck of the sac and Hey's ligament the seat of the constriction, dividing the latter; this permitted me to draw out the small intestine until I exposed healthy gut. The discolored intestine was treated with a hot towel while I proceeded to separate the omentum, tying it off with catgut ligatures and cutting away all that portion presenting within the sac; this I accomplished with but little trouble. The stump of omentum was returned to the abdominal cavity after which the small intestine having recovered itself, was likewise returned; the neck of the sac was tied with a strong catgut ligature, close up to the femoral ring and cut away. Either end of the ligature surrounding the neck of the sac was threaded with a curved needle; the needle carrying the inner thread was passed from within outwards through Gimbernat's ligament, and the one carrying the outer thread passed in the same direction through the upper and outer margin (the superior falciform process) of the saphenous opening; the ligatures were drawn out from the needles and tied securely, in this way engaging the stump of the sac within the femoral ring. Catgut drainage was introduced into the bottom of the wound, the divided cribriform fascia brought together with interrupted catgut sutures, also the skin and the superficial layer of the superficial fascia. Wound was dressed antiseptically.

Case 3.—C. R., aged 39 years, was admitted to my wards in the Philadelphia Hospital with a double complete reducible inguinal hernia. The patient was not able to keep the herniæ up with a truss, having tried various kinds. I advised the radical cure, to which he gladly consented. Having been thoroughly prepared, June 26 I performed Barker's operation upon the left hernia only, with the modification of the introduction of the sutures for bringing together the walls of the canal which I have described. The very much thickened sac as I supposed, was exposed throughout the inguinal canal. I opened the sac a short distance below the internal abdominal ring, finding its contents to be intestine and omentum, both of which were adherent at points to the inner surface of the sac. The adhesions were carefully tied with catgut and separated, when I was able to complete the reduction. The next step was the passing of the ligature beneath the neck of the sac to the proximal side of the opening made in it. In making traction upon the sac in order to tie up as close to the internal ring as possible, I was especially struck with the thickness of the outer wall. This I examined very carefully and could not satisfy myself that it was anything else than the sac, therefore I proceeded to tie the ligature and divide it, when I found I had tied off and divided a double sac. I completed the operation in the usual way. Not feeling satisfied with my work I paid a visit to the hospital in the evening, when I learned that the patient was having a great deal of pain referred to the region of the bladder and a frequent desire to urinate, but with inability to pass urine; was very restless, and had an anxious expression. My resident physician, Dr. Preston, told me he had passed the catheter but was not able to draw off any urine. I passed a soft rubber catheter into the bladder, introducing my finger into the rectum to make sure it had entered the bladder. No urine passed. I then placed the point of my finger over the mouth of the instrument and withdrew it, when after removing my finger from the end of the catheter about a drachm of pure blood escaped. I was now convinced that this condition was due to one of two things, either that the supposed second sac met with at the operation was a vesicocele of the inguinal variety, and that I had cut away a portion of the bladder, that part included in the ligature having slipped from its grasp, thus establishing a communication between the bladder and the abdominal cavity into which the urine was escaping; or, that the patient was suffering from suppression of urine. The latter I was rather doubtful to believe, as the examination of the urine made before the operation did not show any kidney lesion. Yet upon second thought I could not see why, if I had included the bladder I was not able to recognize it at the time of the operation, therefore, directed my treatment for suppression. The following forenoon again saw the patient and found him in collapse. I immediately prepared to do laparotomy believing that the bladder had been wounded. The patient being etherized, became almost pulseless due to the depression of the ether, he being already in a much depressed state; nevertheless, I quickly opened the abdominal cavity in the linea alba between the pubes and the umbilicus, introducing the index and middle fingers of my left hand, and with my right hand passed the catheter into the urethra, when I could feel very clearly the point of the instrument free in the abdominal cavity to the left side of the bladder, thus demonstrating that I had mistaken the prolapsed portion of the blad-

der for a thickened hernial sac, it being closely attached to it, and that I had opened it. In the abdominal cavity there was quite a collection of fluid, which when sponged out proved to be bloody urine. All that was left for me to do was to repair the wounded organ and wash out the abdominal cavity, this I was not able to accomplish as the patient died in a few moments.

Case 4.—James E., aged 46 years, was admitted to my wards in the Philadelphia Hospital, during the summer of 1888, with a complete reducible inguinal hernia of the left side. On July 4 I performed the radical cure. The patient made an uninterrupted recovery and at the end of six weeks was allowed to get up and go about the wards without any support.

Case 5.—Patrick C., aged 45 years, was admitted to my wards in the Philadelphia Hospital, during the summer of 1888, with a complete and reducible oblique inguinal hernia of the right side. Operation for the radical cure was done July 8, 1888. Contents of hernia consisted partly of intestine but largely of omentum, the latter being tightly adherent to the sac. Exercising great care, after considerable trouble I succeeded in freeing the omentum which I tied off with catgut ligatures, cutting it away and returning the stump to the abdominal cavity. I completed the operation in the usual way. The patient made an uninterrupted recovery and was allowed to get up and go about the wards at the end of six weeks without any support.

Case 6.—James D., aged 28 years, was admitted to my wards in the Philadelphia Hospital July 26, 1888, from the Insane Department where I was asked to see him, being told that he had a hernia which had come down the night before and could not be reduced, that the patient was suffering great pain, was sick at the stomach, and that his bowels had not moved for three days. An ice-bag had been applied to the hernia, enemata administered, and taxis attempted, without success. The patient had had two or three attacks of a somewhat similar kind but the hernia had always been reduced by taxis; he had been provided with one or more trusses but would not keep them applied. I advised that he be etherized and the radical cure be done under the circumstances even if I should succeed in reducing the hernia. The patient was hastily prepared, being given a sponge bath of boracic acid solution, and the field of operation washed and thoroughly asepticised. Ether administered, I applied taxis, reducing the hernia in a few minutes after which I did the radical cure. The case was a simple one there being no trouble in separating the neck of the sac and not finding any adhesions between the sac and its contents. He made an uninterrupted recovery, was kept in bed six weeks, at the end of which time he was sent back to the insane department well, being allowed to go without any support.

Case 7.—F. G. K., a German aged 28 years, was admitted to my wards in the German Hospital August 15, 1888, with a very large complete inguinal hernia of the right side. August 17 I did the radical cure. The sac was freely exposed in the inguinal canal and was found to be very much thickened and most intimately adherent to the surrounding parts. The sac was separated and opened and the contents, consisting of intestine and omentum reduced, after separating the omentum and tying off and cutting away a portion adherent to the sac. The remaining part of the operation consisted in tying off and dividing the neck and fixing the stump of the sac in the internal ring and suturing the canal with deep and superficial sutures. In this case the fundus of the sac suppurated and the patient was confined to bed for twelve weeks when he was allowed to be up without any support. Since his recovery he has been employed at the hospital doing manual labor.

Case 8.—Neil McL., aged 55 years, was admitted to my wards in the Philadelphia Hospital in the summer of 1888 with a large complete oblique inguinal hernia of the right side. September 17, 1888, I did the radical cure. I met with no difficulty until I opened the sac when a number of adhesions attaching the bowel to the sac were exposed, which were long enough to admit of complete reduction of the bowel. These I tied off, close up to the bowel, separating them from the sac, and cutting away the free portion. The operation was completed in the usual way. The patient made an uninterrupted recovery, was kept in bed six weeks, at the end of which time he was allowed to get up and go without support.

Case 9.—Joseph P., aged 58 years, was admitted to my wards in the Philadelphia Hospital in the summer of 1888. On September 23, 1888, Mr. Anandale, of Edinburgh, Scotland, who was on his way home from attending the Congress of American Physicians and Surgeons, in Washington, kindly agreed to operate for the radical cure of hernia in the presence of a number of my medical friends. Mr. Anandale exposed the sac throughout, carrying the incision from the upper part of the canal to the base of the scrotum. With considerable difficulty the sac was freed, the adhesions between it and the tunica vaginalis being very firm, calling for considerable handling of the testicle which Mr. Anandale said was not objectionable. The sac was opened and the contents, which were adherent at all points, were reduced after the separation of the adhesions. The sac was now tied off with a long catgut ligature close up to the internal abdominal ring, and all that portion to the distal side of the ligature was cut away. With either end of the ligature threaded, the walls of the canal were brought together. The wound healed up without any suppuration. Unfortunately the testicle became

very much inflamed, resulting in an orchitis which suppurated, requiring openings and counter-openings and the introduction of drainage; notwithstanding all the possible care which was exercised the patient died from septicæmia.

Case 10.—Wm. H. S., aged 25 years, was admitted to my wards in the German Hospital on the evening of November 26, 1888, suffering from a left inguinal strangulated omental hernia which occurred on Friday, November 23, three days before admission to the hospital. The patient stated that the tumor had made its appearance suddenly, and that he had not had a hernia before this accident.

When admitted he was in a state of collapse, with a temperature of 96° F., a feeble and rapid pulse. He had a bowel action on the day of the accident, and not again until the day of admission into the hospital when he had several thin passages.

The swelling was tense, painful and red, giving no succussion on coughing. He had vomited several times since the day after the accident, the matter vomited when examined proved to be only of a bilious nature. He was troubled constantly with hiccough.

To my mind the subjective symptoms presented here, together with the presence of an irreducible tumor at one of the hernial orifices, which tumor had made its appearance suddenly, were those of strangulated hernia. Notwithstanding the looseness of the bowels a symptom in this case, I felt convinced that all the trouble was attributable to the hernia, and particularly so as the patient was very much depressed. It is true that these symptoms could have been caused by a gastro-enteritis, yet I do not think that there is any surgeon who would not have advised the course which I pursued, viz.: to explore and be governed by the result of the exploration. I have seen cases of acute adenitis, particularly of the glands in the cribriform fascia, where the patients gave the history of the tumor having appeared suddenly, and following straining efforts, also where there was sick stomach and constipation. These are cases which simulate hernia, and in which, it may be impossible upon our first visit to make a positive diagnosis, but where, I think, other things being equal, it is advisable to cut down, and if a hernia be found, to operate; or if enlarged glands, to remove them. I have seen cases of strangulated hernia where the patient had several loose passages from the bowels after the occurrence of strangulation, therefore I do not think that we should always expect to meet with the opposite condition, that of constipation.

An incision was made over the line of the tumor, which included the upper part of the scrotum, and the different layers of tissue divided until the sac was reached. Upon opening the sac the contents were found to consist of the geat omentum, the transverse colon presenting at the sac. The lower part of the omental mass was in contact with the testicle and separated from the upper portion of the mass by a partition extending across the tunica vaginalis. In other words, this was a case of congenital hernia into the funicular portion of the tunica vaginalis with perforation of the septum closing the tunica vaginalis.

The omentum being in a questionable state I tied it with catgut ligatures and cut it away; my experience has taught me that where the omentum has been out for any length of time, and where it is adherent to the sac, whether strangulated or not, it is best to treat it in this way. In cases of irreducible omental hernia complicating a recently strangulated gut, where I have separated adherent omentum from the sac in exposing the gut, after having relieved the strangulated bowel and having reduced the omentum, to my disgust at the autopsy, I have found what appeared to me to be healthy omentum at the time of the operation, gangrenous; while, on the other hand, I have had no ill effects by cutting it away.

Case 11.—Thomas R., æt. 50 years, was admitted to the German hospital Dec. 3, 1888, with a complete oblique inguinal hernia of the right side; hernia first noticed twenty-four years ago. Patient has never been able to wear a truss that would hold the hernia up satisfactorily, or that would not cause a great deal of pain; December 8, I performed the radical cure. Sac was exposed throughout the inguinal canal, to the contents of which it was most intimately, adherent, calling for great care in separating it. Sac opened and a large piece of omentum, which was adherent to the inner wall of the sac, separated and tied off with catgut sutures, when the stump with the intestines composing the contents, were reduced; patient made an uninterrupted recovery, and at the end of six weeks was able to get up and go about without wearing any support. June 20, six months after the operation, the patient came to my office, when I learned that the last of the four of the deep set of sutures had come away. The first of the four sutures commenced to annoy the patient by ulcerating its way through the surface four weeks after leaving the hospital, since which time the others have come out in succession. This has been a great source of annoyance as well as inconvenience to the patient, but notwithstanding, he has been able to go on with his work, that of Street Car conductor. Examination of the site of operation shows conclusively that the hernia is returning, therefore, I have had made a light spring truss with flat pad, which the patient wears with great comfort.

In the event of the hernia attaining any size, and the patient not able to hold it up with a

truss, I will advise a second operation, when I will dispose of it after the manner of McBurney.

Case 12.—Wm. P., æt. 75 years, was admitted to the St. Mary's Hospital Jan. 15, 1889, under the care of my colleague, Dr. W. W. Keen, with a large and complete inguinal hernia of the right side. It was found impossible to hold this rupture up by any form of truss several having been tried. The patient becoming very despondent at not being able to have it kept up, begged Dr. Keen, and afterwards myself to operate. After further trial with trusses, under Dr. Keen's and my own supervision, we told the patient that if he still insisted upon operation that it should be done.

February 6, 1889, I performed the radical cure after my usual manner, that of tying and dividing the neck of the sac, fixing latter at the site of the internal abdominal ring, and suturing the canal with a deep and superficial set of aseptic silk sutures. Patient died February 13, not from any active trouble, such as peritonitis, obstruction of the bowels or septicæmia, but from general debility. The result of a profound atheromatous change in the patient's arteries, the circulation was very defective, and at the expiration of five days after the operation, gangrenous points were present in the abdominal walls, also in the scrotum. An autopsy made twelve hours after death, for a two-fold purpose, first to learn the cause of the death, and secondly to secure dissection of the abdominal walls including the field of operation. Examination of the abdominal and thoracic cavities proved negative, the heart and main vessels were markedly atheromatous. The inguinal canal was carefully examined and found to be entirely occluded, as shown by these drawings, the union of the wound was perfect. These drawings show how beautifully the canal is occluded after this operation, also the presence of the neck of the sac at the site of the internal ring.

Case 13.—James Mullen, aged 48 years, was admitted to St. Mary's Hospital March 2, with an incarcerated oblique left inguinal hernia, which was rendered reducible by rest in bed, small and repeated doses of castor oil, with enemata of soap suds and spirits of turpentine.

This not being the first time the patient had suffered from temporary irreducibility of his hernia, I suggested that he let me do the radical cure. March 17, 1889, I operated, meeting with no complications. Was discharged wearing no support.

Case 14.—May 10, 1889, I operated on Wm. S. C., aged 20 years, medical student, for the radical cure of a small complete inguinal hernia of the right side, doing McBurney's operation, with the exception that I did not remove the fundus of the sac. The sac was very easily separated, when it was opened and tied off well within the margins of the internal abdominal ring with aseptic silk and divided. During the first forty-eight hours following the operation the patient complained of a great deal of pain in the region of the kidneys, severe enough to prevent him from resting. He was not able to pass water, and was therefore catheterized, when the urine was found to be small in quantity and bloody. Dry cups were applied to the back with warm applications, and non-stimulating diuretics given internally. At the end of this time the patient was entirely relieved of these symptoms, after which he made an uninterrupted and uneventful recovery.

Case 15.—June 3, 1889, I was asked by Dr. Hurtzel to see Mrs. S., aged 62 years, suffering from a strangulated femoral hernia of the right side. Patient had been etherized two days previously by another physician and taxis applied, but was not able to reduce the hernia. On the morning of June 3, Dr. Hurtzel, her family physician, was sent for and, upon his arrival, attempted taxis without ether, but failed to make any impression upon the hernia. The patient had presented all of the subjective symptoms consequent upon this trouble, but her general condition was good. We advised an operation, to which the patient agreed. Patient was given a sponge bath of boracic acid, the field of operation was shaved, thoroughly cleansed and rendered aseptic. Ether being now administered, I proceeded to relieve the strangulation. The sac was exposed and the neck cleared; fundus of the sac gangrenous, and slightly adherent to the contents. With a hernia knife I relieved the constriction by dividing Hey's ligament. I next opened the neck of the sac, when the contents proved to be intestine and omentum, which were slightly adherent to the sac, but very readily detached without occasioning bleeding. The gut was discolored, but not gangrenous; therefore, the contents were returned to the cavity at once. The sac was now separated up to the femoral ring and pulled down slightly, when it was tied off with a strong catgut ligature and the portion of the sac to the distal side of the ligature cut away, thus allowing the pedicle to slip back within the abdominal walls. I removed the sac for a two-fold purpose; first, to get rid of all that part which was gangrenous, and secondly, to enable me to perform a radical cure. The opening made in the sheath of the femoral vessel was closed with catgut sutures. The next step consisted in bringing the pubic and iliac portions of the fascia lata, with the overlying cribriform (deep layer of the superficial fascia), together with strong, heavy catgut sutures. Beneath these sutures I placed three strands of catgut drainage, the skin and superficial layer of the superficial fascia were brought together with silver wire, and the wound dressed antiseptically. Patient made an uneventful recovery; was advised to remain in bed for five weeks, when she was told she could go around without wearing any support.

THE SANITARY DISPOSITION OF THE DEAD.

Read in the Section of State Medicine at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY C. A. HARVEY, M.D.,
OF NEW YORK CITY.

The problem "What disposition shall be made of the dead?" as it confronts us from a sanitary stand-point, is one around which gather very great and important interests and not a few difficulties. Ever since men became gregarious this problem has had its sphere of more or less importance. If it has long failed of recognition, through the inattention, lack of reflection or stupidity of men, the fact of the importance of the problem has existed all the time.

To the honor of the American Medical Association, it should be remembered that some of its prominent members took advanced ground at quite an early day, upon a more sanitary way of disposing of the dead than that of inhumation. At the meeting of the Association in New Orleans five years ago, a committee was appointed to consider the subject of cremation of the dead, and report at the next annual meeting. Dr. James M. Keller, of Arkansas, was made Chairman of that committee, and read his report at the meeting in St. Louis, May 6, 1886, in which he says, "we believe that the horrid practice of earth-burial does more to propagate the germs of disease and death, and to spread desolation and pestilence over the human race, than does all man's ingenuity and ignorance in every other custom or habit. Towards the conclusion of his report he adds: "The grave-yard must be abandoned. The time has come for us to face squarely the problem, how to dispose of our dead with safety to the living. And your committee has an abiding faith that you will earnestly, and at once say, that the earth was made for the living and not for the dead, and that pure air, pure water, and pure soil are absolutely necessary for perfect health. Only sceptics deny that the dead do poison these three essentials of human life." The Association, not yet fully prepared to recommend the adoption of cremation, resolved that "the report with its conclusions be referred to the Section on State Medicine." At the meeting held in Chicago, June, 1887, the committee on cremation presented another report which was again referred to the Section on State Medicine. It does not appear, from an examination of the Society's Journal, that any further report was made at its meeting last year. And therefore the matter is still in the committee. So that in discussing before this Association to-day the question of the sanitary disposition of the dead, I speak to those who are not only prepared to listen, but to a highly intelligent and scientific body, who are ready to lend their indorsement to that method which may be demonstrated to avoid all the objections which lie against others, which will meet all sanitary demands, and will also have respect to those delicate and fondly cherished sentiments which a Divine Father has implanted so deeply in the hearts of his children.

The great and urgent need of an immediate sanitary reform in the disposition of our dead is, even yet, comprehended in any measure, by but very few. The masses, the *hoi poloi*, have no thought whatever of any such necessity. Hence, the few who are coming to take alarm at the situation must think and act for the many. In all thickly populated and long settled districts the dead outnumber the living. And the longer the practice of burying goes on the greater will be the proportion of those beneath the ground in comparison to those above it. All the time the dead are increasing in numbers far beyond the living. So that the oft heard expression "Gone to join the majority" is more true than poetic. Could two pictures be drawn, one showing the activity of life and all human experience on the surface, and the other depicting all that which is but from two to six feet beneath the life-teeming surface, that vast charnel-house, with the slow progress of decay in every stage, sloughing of decomposing bodies, the oözing from coffins poisoning the surrounding earth, and borne by percolation into underground water courses which feed the neighboring wells, or which issue into water-sheds like that of the Croton—in which are eighty-three cemeteries—storing in congenial soil the germs of disease, which will sooner or later, in many cases, come to the surface with epidemic-scourging; and much more, that is too disgusting to mention, could these pictures be drawn true to life and death, and placed side by side, what contemplation, what reflection would they awaken! not to speak of the shock which the contrast would produce!

Says the eminent surgeon and physician, the late Dr. Samuel D. Gross: "If people could see the human body after the process of decomposition sets in they would not want to be buried. It takes a human body fifty, sixty, eighty years, yes, even longer than that to decay. Think of it! The remains of a friend lying under six feet of ground, or less, for that length of time, going through the slow stages of decay, and other bodies all this time being buried around these remains. Infants grow up, and pass into manhood and womanhood; grow old, and get near the door of death; and during all that time the body which was buried in their infancy lies a few feet under ground in its sickening state, undergoing the slow process of decay."

The cemeteries of the city of Brooklyn occupy nearly 2,000 acres of land. An eminent physician gives it as his opinion that the prevailing

wind blowing over these corruption festering plague spots, carries the germs of typhoid fever and diphtheria to Flatbush, and swells the death-rate of that community to its present alarming magnitude.

According to the report of the French Academy of Medicine, "The putrid emanations of Pere-la-Chaise, Montmartre, and Montparnasse have caused frightful diseases of the throat and the lungs, to which numbers of both sexes fall victims every year." "Thus a dreadful throat disease which baffles the skill of our most experienced medical men, and which carries off its victims in a few hours, is traced to the absorption of vitiated air into the windpipe, and has been observed to rage with the greatest violence in those quarters situated nearest the cemeteries."

It is said that Professor Selmi, of Mantua, has discovered in the strata of air which have remained during a calm for a certain period of time over a cemetery, organisms which vitiate the air and which are dangerous to life. This was proved after several experiments. When the matter in question was injected under the skin of a pigeon a typhus-like ailment was induced, and death ensued on the third day." Experiments prove that these mephitic gases will rise to the surface through eight or ten feet of earth, and that there is practically no limit to their power of escape. In a grave-yard at Stuttgart, in which only 500 bodies were interred yearly, and not more than one in a grave, the north-west wind rendered the emanations from the dead perceptible in dwellings 800 feet distant.

It is related that a grave-digger in Italy named Pisto, went into a vault to steal the shoes from a corpse, when he was overcome with the poisonous gases and met with instantaneous death, falling on the dead body. Unger relates the case of a grave-digger going into a vault in Madrid for the purpose of disposing of another corpse, who fell down dead. Two other men who tried to save him were likewise overcome and died.

Cases similar to the above are very numerous, and have doubtless been met with in the reading of every member of the Association. The usual symptoms of the poisons are faintness and giddiness, and often suffocation. Sir Spencer Wells says that, "decomposing human remains so pollute the earth, the air, and the water, as to diminish the general health and average duration of human life." Dr. Playfair says that "the inspiration of grave-yard gases, entering the blood produces fever; communicated to the viscera, it gives origin to diarrhœa; and may be the cause of consumption."

While ammonia and offensive putrid vapors are given off from bodies decomposing in graves, carbonic acid, which makes cemetery gases so dangerous, is the largest product. Pasteur has published within a few months an account of experiments he and some assistants have recently made with the soil on the tops of graves. He claims that living germs from decaying bodies reach the surface; that animals inoculated with these germs show all the symptoms, and die of the disease which proved fatal to the occupant of the grave. These germs, as well as the poisonous gases, so permeate and pollute the soil, that they find their way into the underground water-courses, and pollute much of the water used for domestic purposes. The Croton water-shed, in which there are 183 cemeteries, large and small, is a conspicuous example. Who can wonder that those who have even a slight conception of the unsanitary horrors of inhumation should bound to the opposite extreme cremation? and, not knowing of any other method, should prefer burning to burying? But, granted a method quite as sanitary as cremation, and yet in perfect consonance with the delicate sentiment, which demands for the departed dead the greatest reverence and respect, would it not be very acceptable? The most enthusiastic cremationist is a sanitarian. If, then, his demand for a sanitary disposition of the dead is as fully met by another method, which to the vast majority of people will be, for many good reasons, more acceptable, will he not be more than willing to aid in its adoption? The sanitarian will not object to being a humanitarian as well. But the mere Dictum, on the part of anybody, respecting the possibility, and even feasibility of such a plan, must, naturally enough, be taken *cum grano salis*. But, were it not so, it would be unfair to impose on anybody's credulity, or to expect the acceptance of a postulate without providing good and sufficient data.

Very happily in this instance, such data is at hand. Experiments in the desiccation of human bodies have been going on for the past two years. In a laboratory connected with one of the medical colleges in New York, an apparatus has been prepared for carrying on these experiments in an exact scientific manner. The result is procured by the use of dry air. Air-tight boxes of galvanized iron are used. After placing a body within, a glass top, the length of the box, is sealed on. At one end of the box is an induction pipe, at the opposite end a conduction pipe. The atmosphere is rendered anhydrous by the use of calcium chloride. After the humidity is extracted the dry air at once enters the box and comes in contact with the body, then passes on to a flue and through a large gas flame which is kept burning therein. A record is made three times daily of the hydrometer, at the point where the atmosphere enters the outside induction pipe; also of a second hydrometer placed at the point where the air is dryest after passing over the calcium chloride, also at the point of entering the box; and of a third hydrometer placed in the conduction

pipe at a point beyond the cadaver, recording exactly the amount of moisture the air has absorbed from the body in its passage. At a more remote point in the conduction pipe an anemometer is placed showing the velocity of the air current; which current can be regulated from one hundred feet to eight hundred feet per minute, as desired. But this is only a temporary apparatus, and cannot, therefore, embrace the conditions which a properly constructed Mausoleum will contain, and some description of which must be given in order to gain any clear or correct conception of the sanitary system of the desiccation of the dead. It is needless to remark that this method is an entirely new departure from any heretofore employed for disposing of the dead. It avoids all the loathsome and revolting features of earth-burial, with its endless train of unsanitary evils, and dangers through poisoning the air, earth and water, and the storing of disease-germs liable to break out in epidemics; avoids the dangers of the unsanitary tomb, and also avoids the shock to the delicate sentiment, which shudders at the thought of the destruction of the remains of loved ones by fire; it avoids the medico-legal objection to the destruction of the evidences of crime, and is even more perfectly sanitary than the process of cremation. The tissues are deprived of moisture, leaving them in a state of complete preservation. A condition which renders a critical examination and a chemical analysis of them, at any time, a very simple and easy matter.

A great number of sepulchres are constructed together in one grand Mausoleum. The sepulchres are formed of concrete, in rows and tiers, similar to the vaults in a safe deposit bank; except where family groups or clusters are specially arranged, with sitting-rooms or parlors adjoining them. These sepulchres are to be constructed in large, magnificent and elegantly appointed Mausoleum buildings, much finer and grander than any the world has heretofore known. They may be built after any style of architecture, Egyptian, Corinthian, Renaissance, Romanesque, or in less classic forms. A building one hundred feet square will contain ten thousand sepulchres. One three hundred feet long by one hundred wide, will contain thirty thousand, or a number equalling the usual allowance for a cemetery of some ninety acres. Thus, showing a great economy in space, which is so valuable near large cities. These buildings are to be constructed of concrete throughout except the outer walls, which may be of granite, brick, vitrified brick, blocks of glass, blocks of slag, or of any time-proof and indestructible material. The sepulchres have one opening, which fronts a corridor, for admitting the body; and, when that is placed within, a plate-glass front is hermetically sealed into that opening, and this is again covered with a marble or metallic door and made secure. There are conduits formed in the concrete, which bring dry air into the sepulchres at one end, and others which take it out at the opposite end. The air, as it passes out is no longer dry, but is laden with gases and moisture which it has absorbed from the bodies, and is now borne through conduits to a furnace, located in an annex adjacent to the mausoleum, where it passes through the fire and is purified; so that no deleterious gases or offensive odors can ever escape into the atmosphere. The air which is drawn into and passes through the sepulchres is first rendered anhydrous in a large drying room into which it is forced, and from which it is distributed to the sepulchres, where it absorbs the moisture from the bodies in its passage. By this process a steady current of dry air is pouring into and through the sepulchre, and doing its work most efficiently on its way.

Very few persons, even among chemists, are fully aware of the marvellously absorbing power of absolutely dry air, and the greedy avidity with which it seizes and appropriates moisture. When a moderate current of such air envelopes a human body in an air-tight sepulchre, constantly drawing the moisture out of the body and bearing it away, the dry air flowing in as the moisture-charged air and gases are drawn out, the process of desiccation goes steadily and rapidly forward until it is accomplished, which is done in about four months.

After the work is finished the conduits are closed. As dry air only can be in the sepulchre at the time it is closed, and as the sepulchre is hermetically sealed, and therefore, atmospheric air cannot reach the now desiccated body. Here it will repose in security and cleanliness thereafter. The body of a man who died one year ago is now lying in an apparatus at the New York University Medical College in a complete state of desiccation. Another body of an adult is now undergoing desiccation in a similar apparatus, the process having been commenced eight weeks ago.

Having witnessed experiments made in Washington, D. C., Dr. A. Y. P. Garnett, formerly President of this Association, in answer to an inquiry from New York, writes:

WASHINGTON, D.C., April 14, 1888.

Dear Sir: Your favor of the 12th has been received. In reply I take pleasure in saying, that I have had an opportunity of witnessing the experiment of desiccating a human body, and feel persuaded that the invention for that purpose is destined to prove one of vast importance. The principle upon which it is constructed is one of scientific accuracy, and has been reduced to a practical fact, so far as I can see. I do not hesitate to pronounce the scheme a positive success. A. Y. P. GARNETT.

Some of the most eminent American Jurists have already given, privately, the opinion, that should incineration threaten to become a prevalent mode of disposing of the dead, statutes

would have to be enacted inhibiting it, because of its absolute destruction in many cases of the evidences of crime. Not alone in the cases of poisons, but of malpractice and of assault, in every diversity of form. It may be replied that a competent board or commission could be provided for, who should make an examination into the cause of death in every case, and thus meet the legal objection raised. But due reflection must show the fallacy of such a suggestion. For, as will be admitted by every practitioner, though the symptoms and manifestations may seem to point directly to certain causes of death, the unmistakable cause can not, in a vast number, if not in a majority of cases, be absolutely and infallibly known without a complete autopsy.

The almost insuperable objections and embarrassments in the way of such a practice as that, are too apparent to be seriously considered by thoughtful minds. Therefore it would seem to be quite impracticable.

I have intimated that this system may be even more sanitary than cremation.

When Abraham buried Sarah in the field at Machpelah, the question of sanitation was not raised. But when in 1843, the elder Chadwick, and others with him in London, began their investigations of the very unsanitary manner in which the dead of that great metropolis were disposed of, the question of sanitation, which was raised, imperiously demanded public attention, and the passing of statutes to regulate it.

So, when at Washington, Pa., or at Fresh Pond, L. I., two or three bodies are burned a month, the question of sanitation as the accompanying result of the burning is not raised. But let burning become the one means for disposing of the dead, and the situation would be greatly changed. Suppose New York City with its suburbs, where the deaths are said to number near 75,000 annually, were to employ no other means, this would require the burning of about 230 bodies daily. At an average weight of 100 lbs. to a body, this would make 7,500,000 lbs. of "green" human flesh to be burned annually, or 33,000 pounds daily. The fumes from a rendering house are voted to be an intolerable nuisance everywhere, and, hence, it is demanded that these and like nuisances shall be far removed from human habitation. But a crematory which should burn the dead of New York, would be nowhere tolerated in the incessant pouring forth of its unendurable odors. The question of sanitation would then become a debatable one between inhumation and cremation. But the process of desiccation burns only the gases and vapours which are drawn from the bodies. The process is a slow one, and, therefore, the escaping products of the bodies are very easily disposed of in the most sanitary manner possible. They are during the whole process under perfect control. Another advantage possessed by this Mausoleum method is the prevention of body-snatching. The building is so perfectly secure and constantly watched that sepulchre robbing is impossible.

An Irish woman had lost her husband. A neighbor went in to lend her sympathy. The widow replied "O t'is hard, indade, but I know where he is o' nights now!" Had she really known the insecurity of the grave, she would not have been so confident.

An electrical device, with wires to be placed in contact with the body, is provided for, so as to prevent entombment alive. I may add, in conclusion, that the expense of sepulture in the new Mausoleum can be made less than that of cemetery burial.

DR. FORMAN, of Philadelphia, said that we shall probably not live long enough to see much reform in this direction, but he wished to say that the danger of contagion from the dead body had been greatly exaggerated. Germs die quickly in our dead bodies. Virchow, for instance, always allows a body to lie a few days after death for this to take place, for there can be no danger of infectious fungus in a body one week after death. Even the danger of infection from small-pox and scarlet fever disappears in a short time.

DR. CARROLL, of New York, said the contagion was often spread not so much from the dead body as from the pall and other fabrics used which served to convey fomites. But, that it is an established fact that disease germs live in the dead body, and propagate themselves in the grave.

DR. BELL, of Brooklyn, thought that the relation to water supply was the important matter. The dead are buried too deep, and the emanations do not pass off above, but below, through the water; in this way he has been able to account for epidemics of typhoid in New York.

DR. HARVEY, in closing the discussion, said that by the method which he advocated the form and features of the diseased were left plainly recognizable for an indefinite length of time; furthermore he reiterated his opinion that unsanitary effects will not result from this plan proposed.

PUERPERAL NEPHRITIS.—DR. COTMAN, at a recent meeting of the Hunterian Society, showed the kidneys from the body of a plethoric woman, aged 40, who had puerperal eclampsia, and died comatose seven days after the birth of her tenth child. A condition of recent inflammation in an early stage was shown, the pyramids being dark and the cortex swollen and soft. She had apparently recovered from the convulsions, and albumen had nearly disappeared from the urine, when the fatal coma supervened.—*Brit. Med. Journal.*

HOARSENESS IN PROFESSIONAL SINGERS, AND ITS TREATMENT.

Read in the Section of Laryngology and Otology, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY CHARLES E. SAJOUS, M.D.

The fact that hoarseness is only a symptom, and, therefore, but one of the manifestations of affections usually considered under general headings, probably explains the limited degree of attention devoted to it as a separate subject in medical literature at large. To this, doubtless, may be ascribed the difficulty commonly experienced by those who, in their efforts to relieve this condition, follow the teaching of their text-books and carry out the therapeutical indications of the affection diagnosed. A wider experience in this class of cases, however, demonstrates that in order to obtain satisfactory results it is necessary to consider hoarseness as an entity having a pathology and therapeutics of its own. As we are to consider in this paper only the class of emergency cases most frequently seen in office practice, and presenting some difficulty in differential diagnosis, all conditions in which a laryngoscopic examination will readily explain the immediate cause, such as tumors, marked paralysis, advanced tuberculosis, syphilis, etc., will not be alluded to.

That hoarseness, to be intelligently understood, should be considered individually, is shown by the fact that although in the majority of cases a mild laryngitis is the immediate cause, yet a large number present no objective symptoms, the vocal bands retaining their pearly hue and the surrounding parts their normal appearance. These cases can not be considered as suffering from laryngitis merely because hoarseness is present, a fact soon demonstrated by the failure of remedial measures calculated to overcome an active inflammatory process.

Although in the class of cases to which this paper is limited, and which represent by far the great majority of patients presenting hoarseness, the integrity of the human voice may be compromised by modifications, superficial or deep-seated, of minutest degree, the pathological process coming into play may be differentiated with comparative exactness when a clear history can be obtained, together with a satisfactory examination of the nasal, pharyngeal and laryngeal cavities.

Unfortunately the microscope can scarce be brought to our assistance to enable us to place our deductions upon a solid footing, the absence of all danger to life rendering it practically impossible to obtain a specimen of the histological changes occurring during hoarseness. Were it even otherwise, and sudden death should occur to a patient suffering from hoarseness, the vascular elements of the specimen of laryngeal muscle, etc., obtained would probably have undergone a certain degree of transformation incident to the disorder which caused death, or to the contraction of capillaries occurring *in articulo mortis*,[1] and thus involve at least an element of doubt as to the reliability of our observations.

An essential requirement for the proper production of sound is absolute integrity of the edges of the vocal bands when they are approximated by the vocal muscles. When the glottis is widely opened the bands are not, as implied by the majority of works on anatomy and in special treatises, "prismatic in shape, having their bases upward," but form, on the contrary, a sort of a hard cushion with a rounded border on each side of the laryngeal cavity. As the muscles come into play the bands gradually lose their rounded shape and their edges becoming sharper at the expense of their base, the prismatic form can soon be recognized, the free edge of each band having become, by this time, especially if a high-pitched note be produced, as keen as the edge of a knife. This keenness is essential, if the purity of the tone is to be preserved; and if, through inflammatory changes of the mucous membrane or its underlying tissues, its outline becomes wavy, nodular, or in other ways deformed, the purity of the voice is proportionately impaired. The ease with which an inflammatory process of any degree may cause hoarseness will be appreciated, especially when we remember that in inflammation the blood vessels, after contracting, dilate sometimes to twice their normal size and increase in length at the same time, while the veins, imitating the arteries, soon follow suit in all but the elongation.[2] Closely allied to alterations of the bands proper, and directly concerned in the production of hoarseness, are those involving the laryngeal side of the interarytenoid space—in other words, the posterior wall of the laryngeal cavity. Inflammation in this locality also offers an impediment of a mechanical character. A greater degree of thickening takes place through the fact of the tissues being comparatively less dense. The contraction of the membrane into folds being thus limited, the imperfect closure of the glottis causes, especially in the high registers, not only hoarseness, but waste of breath through the gap left patent by the non-approximation of the portion of the glottis behind the vocal processes.

Among the local causes which we will first consider is *perverted lubrication* of the larynx, and especially of the bands proper. As shown by Desvernine, of Havana,[3] Coyne demonstrated in 1874 that the bands, which were thought, till then, to be only lubricated from the laryngeal sac, possessed a few mucous glands. He failed, however, to detect their full number. Desvernine

[1] Morell Mackenzie, Diseases of Pharynx, Larynx and Trachea. London, 1880.

[2] Maynac: Pathologie Générale. Paris, 1883.

[3] Annual of the Univ. Med. Sciences, Philadelphia, Sec. G, p. 1, Vol. iv, 1889.

found them in the supra- and infra-glottic region, none being observed in the true glottic region. That the surface, at least of the laryngeal mucous membrane, may be so modified by total or partial absence of lubrication as to induce even marked hoarseness, need hardly be questioned. We find its verification in the results following the same condition in other portions of the upper respiratory tract, and in clinical evidence. It would seem, furthermore, that increased tendency to local trouble from this cause would naturally follow the presence of squamous epithelium over the vocal bands and the interarytenoid space, instead of the protecting ciliated epithelium which lines the surrounding parts.

Hoarseness dependent upon deficient lubrication is most frequent in male singers, a circumstance pointing to tobacco as a possible element in its causation. This does not apply, however, to the toxic effect of the plant itself, but to the irritating action of air contaminated with smoke, which the patient inhales. It may in that manner affect female singers also. The prolonged inhalation of dust, as occurs in railroad traveling, etc., is another prolific cause which at times greatly compromises a first evening's performance. The larynx presents some variations from the normal, the most noticeable being a slight redness, which in professional singers can be of but little diagnostic value, however, since in many the larynx is normally hyperæmic. This redness may be especially marked at the vocal processes, where a small pearl of thick, white mucus is sometimes seen. The subjective symptoms consist principally in a constant desire to "hem" and a sense of constriction at the throat. The singing voice, though not greatly altered, is more metallic or "rasping" in timbre than usual, greater effort being required when the upper register is attained. A pricking sensation is frequently experienced after a few bars have been sung, which generally ends in an explosive cough. That this condition, frequently observed in singers if looked for, is but the primary stage of subacute laryngitis, is to be doubted, the subsequent history comparing in no way with that of this affection. It is a mild form of laryngitis sicca, not, however, in the sense in which the term is understood, "an *exudation* of a secretion changed in quality . . . . a tendency to dry into scales and to become attached to the mucous membrane,"[4] but in that implied by an exact translation of "sicca." There is no more analogy between the two affections clinically than pathologically, there being no scales, no underlying localized irritation, no aphonia, no hæmorrhage. In laryngitis sicca secretion *exists*, though perverted; in the affection in question there is *absence* of secretion, not due, probably, to closure of the glandular orifice of the ventricle of the larynx—although the fact that cysts of retention (Bruns, Luschka) are sometimes observed demonstrates that such a condition may occur—but to atony from exhaustion following the exaggerated efforts on the part of the glandular elements to maintain the superficial tissues in a state of lubrication, notwithstanding the desiccative property of the surrounding atmosphere. In cases in which deficient lubrication is present the voice improves as the performance progresses, instead of becoming worse, as it would were a true inflammatory process present, especially if the original causes of irritation are strictly avoided—smoky atmosphere, etc. The desire to "hem" and the tendency to cough gradually vanish, and at the end of the performance all evidence of the disturbance has disappeared.

A disorder of so temporary a duration might perhaps be considered unworthy of special attention at our hands; yet it merits especial consideration for three reasons: 1. It may be, and doubtless is, frequently taken for a trouble of a graver character, to the detriment of the patient, who is forbidden to use his voice. 2. Astringents are generally used in cases presenting symptoms that may be erroneously ascribed to a catarrhal disorder, the glandular atony being thus encouraged. 3. We can, by recognizing it, save our patient from the mortification of partial failure, to which he is subjected at least during the early part of a performance, most probably the first of a series, and during which the "first impression," so dear to artists, may be greatly compromised. The therapeusis of this condition consists of a warm spray, every two hours, of a saturated solution of potassium chlorate, and 10 grains of ammonium muriate in a tumblerful of water at the same intervals. The last dose should be taken at least three hours before the performance, to avoid exposure during the stage of perspiration which follows the active administration of the remedy. Between the acts a lozenge containing 2 grains of the drug is sometimes found beneficial.

Most frequent among the *inflammatory causes* of hoarseness are those due to the presence of catarrhal changes of a chronic character in neighboring cavities, especially the nose, naso-pharynx, pharynx and tonsils. This origin is sufficiently frequent, in fact, to cause a few writers to ascribe every case of catarrhal hoarseness to some nasal trouble. The intimate anatomical relation between all parts concerned renders it quite certain that whenever a chronic nasal or pharyngeal affection exists in a singer, the least exposure to any exciting cause will induce an extension of the inflammatory process to the larynx by continuity of tissue, the predilection of the vocal organ proper in this connection being easily explained by the constant and laborious use to which it is subjected. But that this inflammatory process cannot develop without nasal or pharyngeal catarrh as a *prima facies*, appears to

[4] Gottstein, translated by P. McBride. Breslau and London, 1883.

me as illogical as the assertion that an intestinal affection must find its origin in the stomach. The fact, however, that nasal catarrh is present in the majority of the cases we are called upon to treat makes it imperative that we should examine the nasal and pharyngeal cavities in every case of hoarseness, and that with considerable care, for the reason that an almost imperceptible though very active focus of irritation may be found here.

Lesions of the anterior nasal cavities are not so apt to cause hoarseness as those of the naso-pharynx or pharynx proper, probably because of the greater remoteness of the parts, and the fact that the secretions are apt to be voided anteriorly. A coryza or an acute exacerbation of a simple chronic rhinitis, unless it involves the naso-pharynx, will not cause hoarseness, but "throw a veil over the voice," as professionals term it, its carrying power being greatly diminished from impaired resonance, due in turn to the erection of the turbinated bodies. When hoarseness is present, therefore, whether resonance be impaired or not, the naso-pharynx will usually be found to be the focus to which hoarseness may be traced.

Whether the implication of the larynx is due to the irritating action of the secretions upon the inter-arytenoid space, on which they will be liable to fall, or to extension of the inflammation along the pharyngeal wall, I am unable to say; but I am inclined to believe that the larynx is assailed in two ways—first, by inflammatory contamination through continuity of tissue, the pharynx having become inflamed principally through the irritating contact of the secretions; and, second, by the superficial congestion brought about by the viscid secretions. The fact that the posterior wall of the larynx, *i. e.*, the inter-arytenoid space as far as the vocal processes, shows the greatest amount of congestion, would seem to lend considerable weight to this theory. Much the same action may result from inflamed pharyngeal follicles; the secretions being more mucoid than purulent, however, the laryngeal congestion and hoarseness are slighter in proportion. Hoarseness from this cause is frequently accompanied by coughing, especially when the follicles are situated in the lower portion of the pharynx, its most sensitive portion. An intense pricking sensation is experienced, which more than compensates for the milder degree of hoarseness. The tonsils and uvula occasionally take part in the inflammatory process, increasing in proportion the intensity of the trouble.

The marked and persistent hoarseness which sometimes characterizes these cases is not to be wondered at when the appearance of the larynx in some cases is remembered. The coloring may involve the entire cavity from the aryteno epiglottidean folds to below the vocal bands, and range from the deepest carmine to the normal yellowish-pink, the posterior portion of the glottis being always two or three shades darker than the rest, and presenting perhaps an accumulation of secretion. Much faith cannot be placed in these physical signs in professionals, however; for, as already stated, the vocal organs of some, especially males, appear markedly congested in the normal state.

In all the conditions just described the integrity of the surface of the vocal bands is not alone invaded, as would seem reasonable to expect, considering the exciting causes. Semeleder, now of Mexico, twenty-seven years ago wrote these lines, which have withstood the test of time: "If we remember that beneath the extremely delicate mucous membrane there lies a very fine and firmly adherent layer of elastic tissue which, being in turn firmly adherent, covers directly the vocal muscle, we can infer that an inflammatory disease of the mucous membrane of the larynx can not easily exist without being followed by exudation into the layers beneath."[5] This can still be applied to illustrate the penetration of the inflammatory process in the majority of the cases, and, at the same time, to explain the poor success of treatment by topical applications where these are unaccompanied by internal medication.

The several forms of "catarrhal hoarseness" have been considered together before alluding to their treatment, because the therapeutical indications of all vary but little, as far as the larynx proper is concerned. The neighboring cavities implicated naturally require attention of a character peculiar to each, and often paramount in importance.

The first question to be considered is that of rest. As a general rule this is indicated in every case of catarrhal hoarseness, whether mild or severe; for as Michel, of Cologne, states:[6] "Singers who use their voice during a more or less grave disorder almost always cause it to lose some of its brilliant qualities." That this is true, there is no doubt, and our recommendation should be framed accordingly, taking the severity of the local trouble as our guide, as regards the duration of the resting period and its degree. In professionals, however, rest is rarely possible, and as long as a vestige of voice remains they insist upon a continuance of their work. What are we to do in these cases? Without doubt the most advantageous plan to all concerned is frankly to disclose to the patient the dangers incurred; to recommend abandonment of rehearsals; limitation to the smallest degree possible of the part to be sung or spoken; to transpose, when possible, all high notes, or, if this is not possible, to shorten the chest register a couple of tones, thus changing to the head tones without having to throw upon the larynx the strain of the two highest notes of the chest register; in other words, to

[5] Semeleder. Rhinoscopie und Laryngoscopie, Wien, 1862.
[6] Revue de Laryngologie, d'Otologie, etc., March 15, 1889.

limit as much as practicable the work of the vocal apparatus.

A general point of importance in the treatment of these cases is one frequently overlooked—attention to intestinal action. In female professionals especially, constipation is almost the rule, due, probably, to the irregular attention they can give themselves, their varying diet, and the continued traveling in railroad cars, the last being a very active agent.

Purgatives, even mild aperients, are, for obvious reasons, out of the question. Enemata, while being immediately effective, present the advantage of not diminishing the patient's strength. An enema composed of one pint of lukewarm water and a tablespoonful of glycerine will sometimes be found to act surprisingly not only on the intestines, but on the voice, especially if, as is often the case with traveling artists, the bowels have not been moved for several days. Important also in this connection is the influence of the gastric and hepatic organs in maintaing the catarrhal affection which induces the hoarseness, and to which singers who indulge themselves rather freely are specially liable. An emetic, followed every two hours until the performance by 10 grain doses of bismuth, acts most promptly in these cases.

Taking now the treatment of the catarrhal disorders of the naso-pharynx in the order in which they were described, we will first consider coryza involving the nose proper and the vault. The turgescence of the erectile tissues of the anterior cavity should first be reduced by a local application with a pledget of cotton of a 4 per cent. solution of cocaine. This accomplished, a powder composed of ⅛ gr. of morphia acetate, 1 gr. of bismuth and 1 gr. of sodium silicate is blown into each nostril, taking care to project the powder sufficiently far to include the pharyngeal vault. The walls of the cavities being thus well covered with the sedative powder, a fine spray of liquid cosmoline is thrown over the whole. The procedure should be repeated in four hours, if possible. If fever is present, drop doses hourly of tincture of aconite will usually reduce it markedly, and favorably influence the catarrhal process.

If the nasal trouble be but an exacerbation of a chronic rhinitis, masses of secretion are often the principal cause of irritation. Their removal by means of a coarse spray of a solution of 5 grs. of bicarbonate of soda to the ounce of water assists the other portion of the treatment. When an attack of coryza is of several days' duration, more active means are necessary to bring about an immediate and lasting cessation of at least the occlusion of the nose. An incision with a small galvano cautery knife into the most prominent swellings over the turbinated bodies of one side is of service. The most satisfactory local application to the pharynx in an exacerbation of simple or follicular pharyngitis is a 40 grs. to the ounce solution of nitrate of silver. A solution of this strength acts to a degree as an anæsthetic by causing contraction of the capillaries. It should be applied with a cotton pledget, after thorough cleansing of the surface with a spray of the bicarbonate of soda solution mentioned. Care should be taken to allow none of the solution to fall into the laryngeal cavity. Inflamed follicles, if painful, should be cauterized lightly with a galvano-cautery point, not more than three or four, however, being destroyed at one sitting. The counter-irritation produced by cauterization frequently clears the voice markedly, especially for the same evening. As far as the treatment of the larynx proper is concerned, I can not say that in my hands the ordinary carbolized sprays, Lobell's solution, etc., have given the results claimed by many; in a number of cases, in fact, they seemed to act more as irritants than sedatives. When there is considerable adhesive secretion in the larynx, however, they become useful as cleansing agents. Much more effective in reducing the hyperæmia and, therefore, the turgid condition of the capillaries of the vocal bands, is a solution of resorcin, 7 grs. to the ounce. A stronger solution causes too much dryness; a much weaker is ineffectual. The preparation should be used with an atomizer about every two hours the first day, then three times daily. To enable the solution to thoroughly bathe the bands, the voice should be sounded *during inhalation*, while the fluid is being sprayed in, the bands being thus brought in and forming a floor, as it were, at the lowest portion of the larynx. When the hoarseness is great, an application with the cotton pledget of carbolized iodo-tannin or a solution of perchloride of iron, 20 grs. to the ounce, causes a sudden contraction of the capillaries, which is effectively maintained by the resorcin solution.

When the case is a recent one and is seen early in the day, an insufflation of the powder recommended for the nose (morphia acet., gr. ⅛; bismuth subnit., gr. j., and silicate of soda, gr. j), repeated in two or three hours, will sometimes succeed in aborting it, especially if the powder is well distributed over the laryngeal surfaces, and if a fine spray of liquid cosmoline is thrown over the powder. A thin coating is thus formed over the inflamed membrane, which protects it for some time against the irritating action of the air current. Morphia has a "benumbing" action on the vocal bands, and should not be used within four hours before singing.

Of great assistance in this class of cases, as well as in the muscular variety next to be considered, is the use of coca wine when taken not only a half hour before the performance, but at the end of each act, so as to obtain the benefit of "toning" action when the next act is about to begin. That the "toning" action is not due to

the wine proper, as some believe, is demonstrated by the fact that sherry, the most alcoholic of all wines, does not at all give the singer the smoothness and ease of execution obtained from coca wine; while liquors, such as whiskey or brandy, tend to increase hoarseness if present, or to cause it if it is not. An interesting paper on this subject was recently read before the Société de Médecine Pratique by Dr. Sandras, of Paris, who thought he could ascribe to the use of cocaine or coca, internally or by atomization, cases of aphonia occurring in his practice. That cocaine used locally in any form may produce aphonia, there is no doubt; but that coca administered internally should, is disproved not only by clinical experience, but by our knowledge of the physiological properties of the drug. As demonstrated by Lafont,[7] the action of coca upon the nervous system is one of stimulation, which exerts itself principally upon the constrictor fibres of the sympathetic. The "toning" action of the drug on the larynx is thus clearly explained by the intimate functional relation between the vagus and the formation of the voice, which depends in reality upon the action of the constrictor muscles. That paralysis may be due to overstimulation by coca is negatived by the vigorous condition of the natives of Peru, Bolivia and Colombia, who are, on the contrary, noted for their staying powers, which they ascribe to their constant use of coca leaves. The fact, however, that many of the coca wines on the market are but solutions of cocaine in either sherry or port wine, renders it quite possible that anæsthesia of the posterior portion of the larynx might be caused by contact with the drug during the act of deglutition, and thereby interfere with the functions of the vocal organ. I noticed this effect—a stiffness in the throat—while trying a number of brands to ascertain which would best serve my purpose. The preparation which I selected (Mariani's), made from the leaves, did not produce this effect, owing to the infinitesimal quantity of cocaine that it contains,—gr. $\frac{1}{16}$ to the ounce—all anæsthetic action being furthermore antagonized by the tannic acid present not only in the leaves themselves, but in the claret forming the excipient. A great advantage of coca wine made from the leaves is that it exerts its tonic action without giving rise to constipation. It can for that reason be administered continuously, with much benefit at times, in cases in which muscular weakness causes tremulousness of the voice.

The effect of *impaired muscular motility* upon the proper production of the voice does not, it seems to me, receive the attention it merits. In professionals, especially, it forms an element second in rank only to the inflammatory conditions of the membrane just described, its origin being easily traceable to excess of work in the majority of cases, and to improper breathing during vocalization. The necessity of singing every evening, to which comic opera singers are subjected by most managers, is sufficient in itself to account for a number of cases. The forced rehearsals, in addition, play the part of the straw on the camel's back in the majority. The results, of course, depend greatly upon the strength of the singer and his method of vocalizing. Many escape myopathic changes for a number of years and suddenly break down; others experience local fatigue and intermittent hoarseness from the beginning. If we remember the great complexity of the vocal muscle, the thyro-arytenoid, which presents a range of variation perhaps unequalled amongst the muscles of the body,[8] we can well appreciate how easily the slightest dilatation of the capillaries may impede its action. If, again, we consider the multiplicity of its duties, we can readily appreciate how easily congestion may be produced. The other muscles taking part in the constriction of the laryngeal aperture also take part in the general results of the causative elements, whatever they may be; but principally concerned in the production of hoarseness is undoubtedly the thyro-arytenoid. Vascular overdistention at intervals, which gradually become shorter and shorter; capillary engorgement due to paresis of the vaso-motors, or of the unstriped vascular muscles which they furnish, with possible infiltration into the perimysium, is probably the extent of the inflammatory course to which the muscles are subjected, the stage of stasis, etc., being probably never reached. As a result of these changes we have not only interference with their mechanical action, especially in the more delicate functions, but also a certain amount of alteration in their topographical configuration, and an involvement of the areolar tissue around the muscle. The latter complication is probably the ruling element in the production of hoarseness, through myopathic inflammatory changes. Could these pathological changes involve the crico-thyroid and the lateral and posterior crico-arytenoid only, hoarseness would not be caused; but located in the arytenoid and thyro-arytenoid, they produce practically, but to a slighter degree, the mechanical alterations caused by inflammatory disorders of superficial and collateral origin, and the same impediments to the proper juxtaposition of the bands in the formation of tone that result from them. In addition, however, we have the manifestations of deficient muscular action.

Hoarseness of myopathic origin is most frequently recognized in females, possibly because their larynges do not as frequently as in the male present the permanent hyperæmia of the bands which renders a positive diagnosis almost impossible. The larynx shows but little, if any, alter-

[7] Comptes rendus de la Société de Biologie, Dec. 3, 1887.

[8] Human Anatomy, by Harrison Allen. Philadelphia, 1884.

ation from the normal. This, of course, does not apply to paralytic or even true paretic cases, in which characteristic appearances would be present, but to atony of the muscles. The speaking voice is normal. The singing voice is generally alone affected, and that only in certain tones, though weakness pervades them all. The higher tones are generally "lost in the breath," that is to say, the passage of the air through the glottis is much more audible than the note proper, although in a small proportion of the cases the upper portion of the chest register may alone be affected.

The treatment of this condition differs in every particular except one from that of the preceding condition. The exception is the attention to be paid to the gastro-intestinal system, which may be found to be an important element in a small proportion of cases. In emergency cases the voice is sometimes markedly improved by a mild Faradic current, the positive pole being applied behind the larynx below the inter-arytenoid notch, and the negative externally on each side of the thyroid cartilage. The point of the laryngeal electrode should be flattened from before backward and covered with chamois skin. For an external electrode I usually use the thumb and index finger of my left hand, the end of the battery cord being fastened to the palm. In this manner I can make the application with much more exactness over the location of the muscles I desire to influence on each side of the glottis, penetration being secured by frequently dipping my fingers in water. The crico-thyroid and crico-arytenoid are first treated by placing the fingers on each side of the space felt below the thyroid cartilage, and sliding them antero-posteriorly along the groove felt in the deep tissues, the skin which slides over the latter with the fingers being pinched when they are approximated anteriorly. To treat the thyro-arytenoid the fingers are merely moved a quarter of an inch higher (just below the lower border of the thyroid), and the same procedure gone through with. The length of the application depends entirely on the ability of the patients to stand the electrode in the larynx. It is generally well tolerated, owing to the fact that it does not enter the laryngeal cavity. Five minutes represents the usual time occupied in such cases. The electrode is introduced a few seconds, then withdrawn, then reintroduced, and so on, great care being taken to avoid touching the base of the tongue. A solution of the hydrochlorate of cocaine can be used to anæsthetize the spot upon which the electrode is to be placed, but the pernicious after-effect of this drug on the voice when the latter is to be used within a few hours renders the use of the drug undesirable.

Internally a pill composed of 1 gr. of quinia and ¼ gr. of nux vomica, administered every two hours, maintains the muscular tonicity throughout the performance, especially when coca wine is taken between the acts, as recommended above. The curative treatment includes the electrical application three times a week, and iodide of potassium, 5 grs., gradually increased to 30, three times daily if the patient can bear it, which he will be much more likely to do if the iodide is administered in a glassful of water immediately after meals, and if three drops of Fowler's solution are given with each dose.

THE VALUE OF INTUBATION OF THE LARYNX, IN CONNECTION WITH OTHER OPERATIONS.

BY MEANS OF CATHETERS, RUBBER TUBING, AND INTUBATION TUBES, WITH METHODS AND DESCRIPTIVE CASES. A NEW SELF-CLOSING INTUBATION TUBE.

Read in the Section of Laryngology and Otology at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

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OF NEW YORK CITY.

As we advance in our specialty we therefore increase in the number of operations, and there is no doubt that most of those have proved to be a lasting benefit to the world at large. I wish here to add and bring before the notice of this body several new methods showing the use and value of intubation of the larynx in connection with other operations.

My remarks upon these methods will be brief, and by way of illustration will cite a few cases upon which these operations have been performed.[1] The following are some of the operations in which intubation by the above means can be made use of: Post-pharyngeal abscess, laryngeal abscess and cysts, syphilitic adhesion of the larynx by a web, in all operations about the cavity of the mouth where hæmorrhage is present, cleft palate, in all œdemata about the larynx, excessive hæmorrhages from the tonsils, post-nasal tumors or growths, in the removal of vegetations of the vault of the pharynx, in cases where a hurried tracheotomy is necessary—called by me the combined method of tracheotomy and intubation, previously intubating with a large-size catheter and then performing tracheotomy, thereby gaining time in operating and supplying the necessary air during such an operation. This I have many times performed much to my satisfaction, and must here say that those who ever perform tracheotomy by this mode will never do it otherwise. Every one who has performed this operation knows the amount of risks that one has occasionally to contend with during the stage of passing the tracheotomy tube, etc. In some other operations where a hæmorrhage or apnœa may be present or due to causes which would require a preliminary

[1] As it seems to me that in subjects such as these it is well to confine oneself to those points about which one can speak from experience, and which one has put into practice.

tracheotomy, without interfering with the operating field.

The following are some of the cases in which I made use of intubation of the larynx: Four cases of post-pharyngeal abscess, one case of syphilitic adhesion of the larynx, three cases of combined tracheotomy and intubation, two cases of œdema of the larynx, one case of tongue swallowing during anæsthesia, etc. All these were treated with the most satisfactory results.

The Methods with Illustrative Cases.—1. The first case in which I introduced into the larynx an English catheter was a child 2 years old which I operated upon for a deep-seated post-pharyngeal metastatic abscess due to vaccination. The abscess was nearly the size of a chicken's egg, occupying nearly the entire space of the pharynx. It was one of two weeks' standing. The patient was in its last stage, and to operate without some means of keeping up respiration during the operation, which was at that time hazardous, and then taking into consideration the possibility of the pus after the incision passing into the trachea; taking it altogether, the prognosis of this case was not of the most hopeful.

Method of the Operation.—The operation was conducted in the following way: The patient was placed in the ordinary intubation position, a gag was inserted, after which a No. 16 English catheter—or use the largest size that can be introduced in such or other cases, in order to prevent fluids from passing in between the unoccupied space, it should previously be softened in warm water. This was introduced well down into the trachea and then turned the outside end towards the back of the head, thus allowing the assistant to control and guard both the gag and catheter. Immediately after the introduction of the catheter the character of the respiration becomes normal and the patient makes no more resistance or struggle during examination or operation. I waited a few minutes, after which I passed the forefinger of my left hand well down upon the abscess, followed by a laryngeal lancet, opening the same by a deep incision. After the incision the child was at once inverted, and pressure made upon the abscess with the index finger. The throat was thoroughly irrigated with a solution of Ch. Marchand's peroxide of hydrogen, ʒiv to ʒiv of water. This solution I always use in such conditions where pus is present; this has proved in my hands one of the best antiseptic and non-poisonous compounds, and should certainly be highly recommended. From this case I make these deductions:

1. That without catheterization of the trachea the chances of suffocation from the pus flowing into the trachea were imminent.

2. The stenosis which was present and so alarming was immediately overcome, and during the entire operation, by previously establishing normal respiration.

3. Guarding the opening of the larynx by means of a large-size catheter.

4. Gaining of time during the operation, and all struggle for breath was thereby obviated.

The next operation that I wish to illustrate is one of syphilitic adhesions of the larynx which was cured by means of incising the adhesions and the introduction of large-size intubation tubes, thus keeping the incised edges from again adhering to each other, and also dilating the adhesions which were previously incised.

A female æt. 35 years, syphilitic, came under my care for the treatment of a severe stenosis. On laryngoscopic examination an inflammatory syphilitic adhesion was seen which existed between the cushion of the epiglottis by a tight fibrous band uniting the vocal cords along the anterior two thirds of their free border and reducing the glottic chink to the size of a goose quill. The right cord was much inflamed and the side of the larynx generally was thickened, respiration was harsh and whistling but regular during the day; there was much dyspnœa; on slight exercise, at night and during sleep loud stridulous breathing on inspiration.

The examination of the lungs elicited dulness over both apices.

The patient was placed on large doses of the iodides and cold applications to the throat. These conditions of the throat within three weeks' time were much improved. Most of the inflammation disappeared.

Now for the treatment of the cicatricial tissue. Dilatation was tried for three months by means of the O'Dwyer tubes. These were worn for two weeks at a time and then changed for larger sizes. Under this mode of treatment and dilatation the patient showed much improvement. She gained in weight. Her lungs again on physical examination in the second week showed a very marked change. After two months the tubes were discontinued and the patient was discharged. Two months later the patient came again under my notice and complained of her breathing, saying that it was not as free as a month previous. I again examined her by the laryngoscope, from which I learned that the cicatricial web again began to interfere with normal respiration, closing around as before treatment. I concluded from the condition of affairs that it would be best to operate, and thereby if possible give her permanent relief. These were the steps taken for the permanent cure of this case:

This patient was one well trained for laryngoscopical examination and who could stand any

amount of laryngeal manipulation. A good light was thrown upon the operating field, and thereby the entire condition thoroughly explored before any operative procedure was undertaken. A 20 per cent. solution of cocaine was sprayed over the pharynx, post-pharyngeal wall, soft palate and larynx, in order to produce a complete anæsthesia of the entire surrounding localities. A gag was inserted on the left side of the mouth. This instrument should be made use of in all such operative manœuvres, so that one may be able to control the opening of the mouth, and not trust to the patient. An assistant should control the head of the patient against an ordinary head rest. These are the preliminary steps that I generally pursue.

The cutting was done with Lennox Brown's laryngeal dilator with cutting blades. This instrument possesses these advantages over the Whistler cutting dilator: In passing tubes into the larynx many difficulties are encountered, and especially through a cicatricial stricture are much greater than generally stated. This instrument of Lennox Brown's possesses the advantage of being a hollow tube of Schrötter and the cutting dilator of Whistler, so that the surgeon in operating is always sure by the outward passage of air, when the hollow tube is in the larynx, is able to incise with more certainty as to what he is cutting and, moreover, in case of spasm the air passages are not entirely obstructed. A large size laryngeal mirror is necessary in order to procure a good laryngeal image. The Lennox Brown cutting dilator was introduced with ease and the cicatricial web cut through. The breathing during the introduction of this instrument was momentarily disturbed, after its complete passage normal breathing was carried on through the hollow opening in the dilator. Hæmorrhage was very slight. After the incision the instrument was withdrawn and the larynx thoroughly sprayed out. A few minutes later a large-size hard rubber intubation tube was introduced into the larynx and kept there for three days without its removal. Cold applications by means of compresses were used for forty-eight hours with irrigation of the larynx, also spraying with a 10 per cent. solution of cocaine for the relief of pain; this was continued for two days with much relief to the patient. Iodide of potash was again resorted to. Three days later the tube was removed and again replaced. An examination after the first removal of the tube showed a great improvement and healing of the wounded cicatricial web. The cicatrix was diminished, and the size of the opening made by the incision was thus kept open by the continued dilatation of the larger sized tubes, until the edges of the cicatricial tissue were well healed. The time of healing of these edges lasted seven days. The tubes should be worn for two weeks at least after their first introduction. The tube should be removed daily for cleansing. Astringent solutions should be used in spray form for after-treatment. This patient made a complete recovery as the result of this operation. It is now two months since the tube has been permanently removed, and when I last examined the larynx I found the cicatricial web in the same state as after the incision. The patient was in excellent condition and breathing at a normal rate.

This method of treatment seems to me to be of a permanent value as compared with other methods. There is no necessity for a preliminary tracheotomy. The tedious dilatation with dilating instruments for an indefinite length of time, and then with a view of a non-success.

I do not mean to say that every case can thus be treated, but there are cases which come under our notice for treatment where such treatment by this mode I here introduce deserves a trial.

I have used these modes of operating in many such cases which are too numerous to describe here. These two cases by way of illustrating which have just above described and are sufficient to bring before you what can still be expected of intubation of the larynx in connection with other operations.

83 2d Avenue, New York City.

TREATMENT OF MORPHINE HABIT.

BY EMORY LANPHEAR, M.D.,
OF KANSAS CITY, MO.,
SURGEON TO EAST SIDE DISPENSARY.

By the introduction of new remedies considerable change has taken place during the past three years in the management of cases of the morphine habit. My present method of treating is, briefly, this: Upon admission to the hospital the patient is introduced to his special nurse who is to be his constant companion during the succeeding six weeks, and after being made comfortable is given an initiatory bath. He is then requested to give up his instruments and morphine as the physician henceforth is to attend to the administration of the drug; he does this willingly and makes no attempt to concealment if he be in earnest about undergoing treatment—if he be not, cure were better left unattempted. Under no circumstances is the patient humiliated by *searching* the clothing and trunk, as advised by many authors—it is the keynote of dissatisfaction and discord can be the only result; in other words the subject is made to feel that confidence between patient and physician is mutual.

WITHDRAWAL.

After these preliminary steps an assurance is given the patient that he is to be made as comfortable as possible and that the pain will be reduced to the minimum. He is then left to become accustomed to his surroundings, and at the

proper hours the hypodermic syringe is brought into use by the attendant who opportunely makes his appearance just as the patient begins to be uneasy. No attempt at reduction is made the first day in hospital: this encourages the subject, causing him to feel confident of the truthfulness of the doctor in the statement that there will be little suffering. Upon the second day but little reduction is made except at the urgent solicitation of the patient, which is not at all uncommon. On the third day the amount is diminished *one-half* (provided a large quantity is being used—less than one-half if only a few grains are being taken daily); on the fourth day a reduction of one-half, the fifth the same, and so on. Thus if sixty grains be the amount taken, on the second day perhaps fifty grains may be injected; on the third day thirty, on the fourth fifteen, on the fifth eight, on the sixth four, on the seventh two, on the eighth one, on the ninth one-half and on the tenth pure water. Frequently the diminution can be carried on much more rapidly than this; more than once I have run the scale from sixty grains, taken hypodermatically, to nothing within a period of four or five days, but most cases require from seven to ten days for complete withdrawal. Each case must be a law unto itself. Alarming symptoms may demand slowness; happy indications prompt haste. Undue prolongation of withdrawal is to be studiously avoided as it is even more cruel than the abrupt discontinuance of the Levenstein method.

INSOMNIA.

Nothing is given to produce sleep the first night—nothing is needed; the second night the patient is given his last dose of morphine at ten o'clock upon retiring, and this suffices. At eight o'clock on the third night twenty grains of sulfonal are given; the patient then is allowed his second bath and at half-past nine the sulfonal is repeated and an hour later the morphine. During this night the patient will be somewhat uneasy but will sleep fairly well; the next will be a troublesome one, so at 6 P. M. he is given four grains of monobromide of camphor, and the dose is repeated at seven, eight and nine o'clock; at ten recourse is again had to the scruple of sulfonal, and at eleven the same amount is administered simultaneously with the last injection of morphine, the number of injections having now been reduced to two *per diem*—one as late in the day as the patient will permit, the other at bedtime. The next night and the next the same procedure is carried out and, with possibly one night of sleeplessness, from four to eight hours' sleep will be secured each night. The amount of monobromide of camphor is rapidly decreased after three or four nights and as soon as possible the sulfonal is superseded by ammonium bromide, which is also nightly reduced in quantity until nothing is taken. This is usually about the fourteenth or fifteenth day.

DELIRIUM.

Delirium, if it arise, as is frequently the case if withdrawal has been rapid, is met by the hypodermatic injection of one-sixtieth (1-60) grain of hyoscin hydrobromate, repeated in one hour if necessary. A third dose is never given inside of eight hours. In one case (of abrupt withdrawal) where maniacal symptoms arose the same quantity of hyoscyamine sulphate acted kindly, but the other hyoscyamic alkaloid has proven eminently satisfactory in my hands. A brief period of excitement follows its injection, succeeded by a feeling of calmness—even tranquility—which persists from four to twelve hours. I have never had a dangerous symptom from its use and in only once case have I found it devoid of efficacy.

DIARRHŒA.

Under this mode of treatment diarrhœa has not proven the distressing feature that it has in former cases—why, I do not pretend to say, I simply record it as a clinical observation. Salicylate of bismuth has given fairly good results when tried, but most reliance is placed in a mixture of bismuth subnitrate, tannic acid and aromatic syrup of rhubarb in quantities sufficient to control the number of discharges. If there be great pain and tenesmus codeine sulphate added to the bismuth mixture acts charmingly, far better than opium or morphine and with less harm. The "sinking-feeling" at the pit of the stomach is generally amenable to hot fomentations or a belladonna plaster; vomiting, which also sometimes accompanies the diarrhœa, often yields to half-grain doses of carbolic acid in peppermint water, though it usually is not of sufficient importance to demand attention unless it occur after each effort to take nourishment.

PAIN.

One of the most distressing features is "cramps" in the muscles of the leg and thigh and neuralgic pains—particularly sciatica. For this fifteen grains of methozin (antipyrin) is dissolved in sixty minims of distilled water and a half injected over the seat of the greatest pain, the other half close by. A sharp, stinging sensation follows, persisting for a half minute, succeeded by a complete subsidence of the pain. My experience corroborates that of Germain Sée: that in methozin, injected beneath the skin, we have an agent even more powerful than morphine for the relief of nervous pain.

DISTURBANCES OF CIRCULATION.

For remedying this important group of symptoms I have found nothing superior to the well-known lines: food, alcohol, recumbent posture, warmth, friction of the extremities, etc. Milk

punch usually meets all the requirements and cannot be improved upon. Here hot sponge baths, once daily, are useful, and give a sense of comfort. In weak heart digitaline has proven utterly valueless in my practice; atropine is better.

NERVOUS SYMPTOMS.

For the nervous symptoms other than delirium and sleeplessness, *i. e.*, for the general uneasiness and anxiety, I often prescribe:

℞. Tincturæ hyoscyami
Elixir potassii bromidi (N. F.[1]) āā f℥j.
Misce. Sig.: Dessertspoonful three or four times daily—to be gradually diminished.

When convalescence is established tincture of nux vomica affords much satisfaction—five to ten drops in half a glass of water before meals, and an iron tonic is of service one hour after meals.

CONCLUSION.

In conclusion I would say:

1. With these new remedies we pass the "ordeal" of withdrawal far more satisfactorily than heretofore.

2. Many baths are avoided because too weakening.

3. The physician gives each dose himself so that for a day or two after complete suspension of the drug pure water may be injected to relieve the patient's mind.

4. Complete cure (permanent) can be effected much more frequently than authors would lead us to suppose.

5. With competent, trustworthy nurses and hospital confinement it is not a difficult disease to treat.

6. During convalescence the patient is constantly assured of the permanency of the cure—a sort of non-hypnotic "suggestion."

7. Before discharge ample explanation is made regarding the necessity for carefully avoiding the use of the drug for any disease within a period of at least two years.

8. Not the least important element of success is attention to the daily life of the recuperating invalid: nutritious food, abundant exercise, proper sleep, freedom from worry, and to end all a pleasure trip if possible.

No. 8 E. Ninth street.

[1] I make it my rule to prescribe articles included in the National Formulary whenever possible, as far preferable to the "general run" of proprietary goods.

MEDICAL PROGRESS.

EXTIRPATION OF THE SCAPULA WITH PRESERVATION OF THE ARM.—PÉRIER reports the case of a man aged 55 years in which he removed the right scapula. In July, 1889, the patient noticed a small tumor on the right shoulder which by October had reached the size of one's fist; the skin covering it was glossy, tense and discolored. There was no ganglionic enlargement and no pain; the movements of the joint were free and the general health perfect; the case was evidently one of sarcoma requiring extirpation. The acromion and a small portion of the spine of the scapula were first resected; upon examination of the surface of the bone section islets of a dark melanotic hue were seen and it became necessary to remove the entire scapula after detaching the adjacent muscles. A large wound remained, at the bottom of which the head of the humerus could be seen surrounded by the capsular ligament, which was like a narrow prepuce. After arresting the hæmorrhage and using Van Swieten's solution freely the opening of the capsular ligament was closed and the detached muscles were sutured. The cutaneous wound was then united and dressed with salol. The skin mortified at the points where it had been tense but there were no other complications. After completion of cicatricial healing the arm remained suspended from the extremity of the clavicle; its movements were limited but its helplessness was due to the loss of abduction which it is hoped will improve. An examination of the tumor by Toupet showed that it was really a sarcoma, but the little black islands were found not to be due to melanosis but to sanguineous effusion into the sarcomatous tissue. At present there are no signs of a return of the disease.—*La Sem. Méd.*

ERYSIPELATOUS BRONCHOPNEUMONIA WITHOUT EXTERNAL ERYSIPELAS.—MOSNY reports the case of a servant who while attending his master during an attack of facial erysipelas took sick with inflammation of the lungs and died within two days. The autopsy revealed a very circumscribed bronchopneumonia focus from which the author cultivated a streptococcus which was proved by inoculation to be identical with the streptococcus erysipelatos. He regards this as the second case of erysipelatous pneumonia—the first having been described in 1879 by Strauss.—*Cent. für Bak. und Parasitenkunde.*

THE MICROBE OF INFECTIOUS OSTEO-MYELITIS.—LANNELONGUE in an important communication to the *Académie des Sciences* discusses the subject of the microbes of infectious myelitis. From a careful study of this subject he finds that the pathogenic agent is not exclusively the staphylococcus pyogenes aureus, but that the staphylococcus pyogenes albus plays an equally important rôle and that sometimes the streptococcus is the cause of the suppuration. Ja-Conly and Bertoye have made similar reports.—*La Province Méd.*

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SATURDAY, MAY 3, 1890.

WHAT SHOULD ENTITLE AMERICAN PHYSICIANS TO THE RIGHT TO PRACTICE MEDICINE?

The American Medical Association, from the time of its organization, has sought to secure the highest practicable standard of medical qualification for the physicians of our country, and, thereby, to give the public the best obtainable skill. THE JOURNAL, in its efforts to reflect the sentiment of the medical profession of the United States, has from time to time presented to its readers the efforts that are being made through our different medical organizations and by State legislation to elevate the standard of medical attainment, and to determine a degree of attainment that should entitle a physician to the right to practice medicine. It has been made manifest that the Federal Government cannot either undertake to educate physicians, or to establish any uniform standard of qualification for medical practice. The courts have, however, decided that the State, under its police power, has a right to legislate for the protection of the lives and health of its people, and thus to enact laws regulating the practice of medicine. But it is not practicable to have any uniform law to govern practice in all of the States and territories, for the demands, professional, physical and social, vary very much. The most feasible plan therefore seems to be for each State and territory to establish for itself, the standard of attainment which will be required to entitle a physician to practice medicine in that State or territory, and, also, to decide how it shall ascertain whether that standard be attained. For that purpose it seems best that each State and territory should have its Board of Examiners charged with the execution of a law, and capable of conducting proper examinations as to qualifications. Such boards should have a right to ignore the possession of a diploma by any applicant, or his claim that the diploma should carry with it a right to practice. Such a course would make American Medical Colleges what they should be, simply teaching bodies. Then a healthy rivalry would develop, not, as at present, to turn out the largest number of graduates but to do the best teaching and to afford the greatest facilities, through thorough equipment, for a liberal medical education and the preferment which such a course would secure for its graduates. The evolution in medical education which has been going on since our colonial days has gradually led up to a conviction now quite general in the profession, and with the public, that teaching and licensing to practice ought no longer to be united in any medical college.

That it has been possible to regulate satisfactorily, by the State, the practice of medicine through properly constituted medical boards charged with the execution of laws passed by the State for that purpose has been demonstrated in several States. Illinois was one of the first. Although its early efforts were only partially successful, through imperfections in the law and inexperience in its enforcement, yet much good has resulted, through the judicious course pursued by the board charged with the enforcement of the law. The greatest defect of that law lies in its recognition of a diploma from a medical college which the board recognizes as "in good standing," and entitling the possessor of it to a certificate from the board without examination which, on its being recorded, entitles its possessor to the right to practice medicine in the State of Illinois. Whilst the law's restrictions have done much for the cause of higher medical attainment, a still greater gain would probably be made if the State should so amend the law that all diplomas should be disregarded and all applicants for license should be subjected to the same examination in all of the essentials of a medical education, regardless of the source from which the knowledge came. The State of Minnesota has

enacted a law which, whilst doing much good for the people of the State and aiding the cause of higher medical education, is perhaps unnecessarily stringent in that it requires that an applicant for license must have a diploma, and from an institution which complies with the requirements of the law of that State. A board which is qualified for the responsible duty which devolves upon it, should be able to pass reliably upon the candidate's attainments, irrespective of his possessing a diploma and regardless of the source of his knowledge.

If at the conference of medical colleges, which it has been proposed should be held in Nashville at the time of the next annual meeting of the American Medical Association, steps can be taken in the direction of efficient legislation by more of the States to govern the practice of medicine, more good will be accomplished than by trying to establish any uniform system of teaching medicine in the different medical colleges of the country, or of requirements for graduation; for many of the smaller colleges, being without proper equipment for teaching, and without adequate clinical resources, should only be regarded as preparatory medical schools, not as colleges which should grant diplomas. The adoption by all of the States of such a plan of regulating the practice of medicine within its limits would have several advantages, in that it would require all applicants to be subjected to the same examination upon all essentials in practice, and disregarding sectarian views relative to therapeutics as of secondary importance. One effect of this would be a tendency to unification of teaching and practice, and doing away with so-called sectarian schools and obviating any supposed necessity for "mixed boards." By recording on the certificates the grade attained on the established scale of numbering, that certificate, when registered by the county official as required, would enable the public to ascertain the result of the examination, and thus to form some idea of the physician's attainments, which they now find it very difficult to do, and find that they have to content themselves with the vague assurance that the physician has "a diploma." With the record a public one, which the physician knows, and with a right to have subsequent examinations and a higher rating, an incentive would be given for further study and greater attainment than is now felt by many who are content with having "a diploma," which is regarded by them as an all-sufficient passport which obviates any necessity for further study. The advantages and the inducements for further study, as shown in the second examination required in the medical corps of the Army, the Navy and the Marine-Hospital Service render it probable that, in civil practice a hope of greater reward for increased proficiency would not be without good result in these days of active competition in the over-crowded medical profession. Since the medical colleges, after long-continued efforts to remedy the evils incident to licensing to practice medicine, have been unsuccessful, the great hope of the public and of the medical profession seems to lie in judicious legislation by the States. The members of the American Medical Association, the most representative body of medical men in the United States, can do much to influence wise and just legislation in the States that have not already enacted laws to regulate the practice of medicine. If the Association, at the Nashville meeting, will continue the effort which it has been making, and its effort should be supplemented by the proposed conference of medical colleges at that time, further impetus may be given in the direction of more and better legislation by the States to regulate the practice of medicine, and to determine what shall entitle a physician to the right to practice in the State in which he resides.

STANDARD PREPARATIONS.

No more important matter will be brought to the attention of the Committee on revision of the United States Pharmacopœa, to meet in a few days, than the proposed adoption of standard preparations. The adoption of standard (or "standardized") preparations would require that all manufactured articles should be made from crude drugs of known strength, as determined by assay.

The pharmaceutical profession is divided on the subject, and to many of its members there seems to be a financial aspect of the subject which is more to be regarded than all others. The manufacturing pharmacists on the one hand advocate the adoption of standard preparations as a just measure, and one that is calculated to increase their revenue; but the dispensing drug-

gists oppose it as impracticable. That it is impracticable to many of the dispensers, there can be no doubt, for there are perhaps comparatively few who are competent to make a correct assay of organic drugs. To those who are competent it is objectionable in the great expenditure of time it would require of them, and in the fact that there are many preparations in which absolute accuracy of strength is not essential. That the measure is practicable, however, is sufficiently demonstrated by the fact that some of our manufacturing pharmacists have used none but assayed drugs for a period of several years. We are pleased also to see that PROF. C. T. P. FENNEL, of Cincinnati, a member of the pharmaceutical committee on revision, and one who is a dispenser and not a manufacturer, strongly urges the adoption of standard preparations, in an article contributed to the January and February numbers of the *American Druggist*.

To the medical profession the question is simply: Shall we insist upon receiving the best that can be dispensed, or shall we put up with what we have? The mere hint that our prescriptions can be filled with greater accuracy than they at present receive, should be cause sufficient for earnest demands for improvement. Who can tell the dose of aconite, belladonna, digitalis, gelsemium, or of a host of other medicines? Much valuable time is often lost in ascertaining the quantity of a given preparation that is necessary to obtain a required effect. Individual idiosyncrasies are of course met with in patients, but they are not to be compared in frequency with the uncertainty, even dangerous variations, in the strength of medicines. An editorial in the journal just referred to opposes the adoption of standard preparations because there are certain drugs, among them digitalis, whose active principle has not been definitely determined, and others whose assay is not positive, and yet others in which absolute accuracy is not necessary. We note that one of our prominent pharmaceutical journals in a succession of issues, vehemently opposes the measure on no higher than financial grounds. But the physician, when he sends his prescription to the apothecary, has a right to demand that it shall be compounded of drugs whose action is equal to that which he has learned to expect from them, and he should not be intimidated by the fact that there is some doubt as to the identity of a certain alkaloid, or as to the best means of assay; much less by the pecuniary interests of the apothecary, whose interests he is, as a rule, under little obligation to respect. It is solely a matter of justice to the patient, as well as to him who prescribes.

Fortunately, the interests of the medical profession will be ably supported in the committee by the gentlemen who were appointed to represent the American Medical Association at the last annual meeting.

REFLECTIONS OF A BELGIAN VISITOR.

Americans who find everything European superior to what we enjoy at home will do well to read the letter published by a Belgian physician in the *Gazette Médicale de Liége* (February 20, 1890), after a visit to this country. The letter closes as follows: "It cannot be denied that as regards hospital accommodations (to say nothing of other matters), young America has surpassed most of the old countries. What is the talisman that has so quickly produced such wonders in America while we, with no end of talent and desire, must struggle painfully along, and be satisfied often enough with a shabby result? We leave to others the task of solving this problem, merely observing that the absolute liberty of inception that prevails is sufficient to account for a large part of the results obtained. Whatever it may be, after viewing such public benefactions as these one turns to Belgium and is unable to restrain a feeling of sadness. What would not the worthy men who direct our own clinics accomplish if they had at their disposal but half the facilities and resources which are so freely offered in America! But we have the chaos of our restrictive laws, our superannuated regulations, our despotic administration, and under the paternal eye of our *Etat Providence* our bureaucrats find it difficult enough to live in peace!"

EDITORIAL NOTES.

MEDICAL ASSOCIATION OF MISSOURI.—The thirty-third annual meeting of this Association will be held at Excelsior Springs, Clay county, Mo., May 6, 7 and 8, 1890. Reports may be expected on scientific subjects from the following committees and sub-committees: Surgery, Medicine, Education, Respiratory and Circulatory Or-

gans, Obstetrics, Gynecology, Neurology and Psychology, Ophthalmology and Otology, Dermatology, Abdominal Surgery, Railroad Surgery, State Medicine, Diseases of Children, Collective Investigation, Anatomy and Physiology, Genito-Urinary Organs. Members are urged to be active in inviting their medical friends to become members. Many will receive a number of notices, which they are expected to send to friends. The medical men of Kansas are invited to be present.

RAILWAY FARES.—We are advised by Secretary Atkinson that through tickets to Nashville are not sold on several of the roads over which members will travel when attending the annual meeting. For the benefit of those of our members who desire to secure special rates upon return tickets we offer the following suggestions:

First.—Let each member, when he purchases his ticket, be sure to obtain from the *ticket agent* a certificate to the effect that he has paid full fare for the distance for which that ticket is issued. If he is obliged to purchase more than one ticket, let each certificate cover the mileage for which the ticket is issued.

Second.—These certificates must be presented to Secretary Atkinson at Nashville and receive his signature.

Third.—Certificates thus countersigned can be presented at the various railroad offices and return tickets will be issued at one-third rates.

POST-GRADUATE MEDICAL SCHOOL OF CHICAGO.—Drs. Charles Warrington Earle, Sanger Brown, Dudley C. Trott, Weller Van Hook and Ernest Lackner, have recently been elected to the Faculty of the Post-Graduate Medical School, in the following departments: Dr. Earle, Professor of Obstetric Operations; Dr. Brown, Professor of Mental and Nervous Diseases; Drs. Trott and Van Hook, Professors of Surgery; and Dr. Lackner, Professor of Diseases of Children. The Faculty will entertain the members of the Illinois State Medical Society with a lunch at Kinsley's on Tuesday evening, May 6, 1890.

DR. FELIX WOLFF, of Hamburg, has been entrusted with the medical management of the celebrated Sanatorium for Consumptives founded at Görbersdorf, in Silesia, by the late Dr. Brehmer. Dr. Wolff was for a long time chief assistant to Professor Curschmann, of Leipzig, and may justly be considered fully capable of conducting and augmenting this valuable institution, so justly famous throughout all Germany.

REGISTRATION IN MASSACHUSETTS.—The Massachusetts Legislature has at present under consideration a bill requiring the registration of physicians, and providing by fine or imprisonment, or both, for the punishment of those who without license shall permit the title of Doctor to be used in connection with their names. The bill is certainly in the interest of the people, and for their protection it should become a law.

ILLINOIS STATE MEDICAL SOCIETY.—The Committee of Arrangements have completed their preparations for its fortieth annual meeting, which is to convene in Chicago on May 6. On Tuesday, in addition to the morning and afternoon sessions, a lunch will be served from 6:30 to 7:30, after which prominent neurologists will discuss a paper to be presented by Dr. E. Ingals, upon the subject, "What Shall We Do with our Insane?" On Wednesday, after two sessions, the local profession will tender a lunch at the Auditorium, and an opportunity will be given to inspect this magnificent building. On Thursday two sessions will be held for the hearing of reports, the discussion of papers and the transaction of miscellaneous business.

TULANE UNIVERSITY, NEW ORLEANS.—Ninety-three students graduated at this institution at the annual Commencement, which occurred on April 1.

THE PITTSBURGH PHYSICIANS.—There is a movement among the physicans in Pittsburgh to pool their offices, if not their patients. They propose to erect a ten-story building, to be occupied by physicians only, who will thus have their offices in close proximity. Whether the project shall prove defensive or offensive remains to be seen.

FOOTBALL CASUALTIES.—The London *Lancet* contains an analysis of the football casualities during the winter season of 1889–90. By it there have been not less than thirteen deaths referable to this dangerous sport. The list of injuries, other than fractures, includes three of the spine and two of the knee or ankle. Of fractures there were thirty in all, of the collar-bone eleven, arms four, and legs fifteen. These are the cases that have found their way into the papers, but there are doubtless many others that are not reported in any way.

TOPICS OF THE WEEK.

GERM ANTAGONISM.

We shall not use the term germ in accordance with the strict definition of the same, but in accordance with its generally accepted use in relation to disease, meaning to embrace the source of all organic life in its various forms from the embryo up through the progressive stages of development, through which it may influence other living organisms.

The term life is a very comprehensive one when applied to the species or individual, for the known species of the universe visible to the naked eye alone in the fauna and flora are numbered by the hundreds of thousands. Then the species of the microscopical world are equally numerous, only they have not all received their name.

Then, as we grope on into that great and mysterious darkness, into which the microscope, endowed by human ingenuity, has, as yet, been unable to fathom, and there count the untold influences which, when combined under right circumstances, give distinct results as specific as any of the species of the visual world, then can we begin to comprehend the extent of *life*.

These so-called unseen combined influences, which are the cause of the specific results, when summed up are but germs with another name, either in their development in the grades upward in life, or downward in death. Thus, as we contemplate life we dwell upon death, for out of life comes death, and from death life gathers sustenance.

Is it not so that life devours life? or, in other words, feeds upon what has been created by life, and the cycle is completed where death joins life?

Let us, then, divest ourselves of the thoughtless idea that there is no life beyond our present power to examine; for who is prepared to say but that there is, and may yet be found, in the pre-microscopic world or the mystic realm unseen, the germs peculiar to itself and distinct in its nature, that give rise to certain effects denominated disease?

We say not that all germs produce disease any more than all seeds produce thistles or other noxious weeds; but as the microscopical world is opened to us we become aware that we are continually surrounded by germs of many varieties.

Miquel, for instance, has found that the ordinary atmosphere of a large city contains over 2,000 bacteria per cubic yard, while the air of the room of an old house in winter will show bacteria to the amount of 4,500 per cubic yard, and again that the wards of a long-used hospital will hold as many as 90,000 germs in the same space.

Observation seems to show that the different varieties require different conditions for development, each species varying in its susceptibility to different influences.

That certain diseases are epidemic or endemic undoubtedly depends upon the local and atmospherical influences which favor the development of those specific germs, and also on some influences producing in the system a condition or soil especially favorable for their reception. Or it may be that the local influences have multiplied, or permitted to multiply, the specific poisons or germs, to such an extent that the myriads in defiant hosts settle down upon and infect the unfortunate being, giving rise to the special symptomatology. It is probable, therefore, that we must have both the presence of the specific germs and also a fit condition of the system for their development.

For persons of good constitutions, and sometimes constitutions not entirely healthy, may pass through epidemics untouched, while others of a debilitated or of a certain condition, will be quick to receive or develop the disease.

It would no doubt astonish us if we could know how extensively the poisons that exist around and come in contact with us in different ways are resisted, rejected and overcome by the human organism.

That these poisonous influences are of a specific kind and give rise to a specific disease, is just as probable as that the germ of an oak acorn will grow an oak, instead of a pine, or that the germ of the wheat will produce wheat, instead of oats.

What are the diseases scarlatina, pertussis, diphtheria, but the infested human system overpowered by the rapidly reproduced specific poison peculiar to each respectively, and that these germs have only to exhaust the soil to become extinct, or, in other words, terminate the disease? Facts have been adduced which prove conclusively that the morbid poisons, whatever their form or classification may be, act in all cases not capriciously, but according to certain definite and fixed laws. Mingled with the blood yesterday, to-morrow, after having had a period of latency, swarming into innumerable myriads, possessing the whole field as a pest, devouring everything before them; in short, passing through the various stages of transition, germination, growth, maturity, and finally death.

Such are the remarkable laws of morbid poisons that many of them possess the extraordinary property of exhausting the constitution of all susceptibility to a second action of the same poison, as is the case with syphilis, scarlatina, measles, typhoid fever, small-pox, whooping-cough, and indeed with a considerable number of others. And in fact temporary protective influence is imparted by most all morbid poisons, for few persons suffer a second attack of the same specific epidemic disease, and at least the susceptibility of the constitution is temporarily impaired.

These morbid poisons or epidemic influences are now nearly, and soon probably will become, entirely synonymous with the term germ, as used in its ordinary broad meaning.

But that some of the numerous organic forms are actually necessary cannot be intelligently disputed; for, as Sir William Roberts says: "Without saprophytes there could be no putrefaction; and without putrefaction the waste materials thrown off by the animal and vegetable kingdoms could not be consumed. Instead of being broken up as they are now, and restored to the earth and air in a fit state to nourish new generations of plants, they would remain as an intolerable incubus on the or-

ganic world. Plants would languish for want of nourishment, and animals would be hampered by their own excreta, and by the dead bodies of their mates and predecessors. In short, the circle of life would be wanting an essential link. A large proportion of our food is prepared by the agency of saprophytes. We are indebted to certain bacteria for our butter, cheese and vinegar. Our daily bread is made with yeast, and to the yeast plant we also owe our wine, beer, and spirituous liquors."

This tiny cell, as a generator of alcohol, plays a larger part in the life of civilized man than any other tree or plant.

It is not necessary to look to that extreme of spontaneous production, for these germs readily enough multiply when they find the desired soil. They may exist either upon or in plant or animal, and be transmitted or communicated indifferently from animal to man or man to animal, or from vegetable to animal. For plants, as well as animals, have their peculiar parasites and parasitic diseases. They may be either vegetable or animal. The oak, apple or gall nut is a familiar example of the large animal parasite affecting a plant. Then there are the blights, mildew, smut, brand and other forms of fungi that are capable of propagation and transmission.

Yet each species is affected more particularly by its particular parasites, and these are themselves affected by their own parasites, and so on almost indefinitely, each one antagonized by some other. This series might be continued on down through the microscopic field into that which has not yet been explored, and including those influences or germs that affect the human organism in such a manner as to cause the condition we call disease; for who can dispute but that all infectious, epidemic, endemic and malarial diseases are but the result of a special multiplying parasite or microphyte infecting the blood or tissues of the body. That these special germs do not always multiply or develop, causing disease, is no more a cause of wonderment than that of germs of a higher order of life do not always find lodgment in a soil adapted for their development.

The seed of fireweed, for instance, may pass over hundreds of acres of tilled soil and miles of forest before it finds a suitable place prepared by fire for its growth. So, too, small-pox germs may be present, and some systems be very indifferent to their reception, because the soil is not just right. So, also, there is the inherent power of all organized life to resist oppression.

The power of the human system to resist poisonous influences is something remarkable; yet, when infested by rapidly multiplying hordes of life, it often succumbs for a time; or, in other words, the system is overpowered until the soil is exhausted and the germ dies for want of food, or is swallowed up by other germs.

And so we are only to stop and reflect of the many ways in which the body is beset by these antagonizing germs—the air we breathe swarming with its clouds of life, the food we eat and the water we drink permeated in every particle, and the primordial cells, whenever uncovered by accident or the surgeon, sought after with an insatiable and rapacious appetite by these mysterious beings—then we may begin to comprehend the unlimited power that relentlessly antagonizes back to the mother dust.—Wilder, *Times and Register*.

HUMANITY AND CONSTITUTIONALITY OF ELECTRICAL EXECUTION AFFIRMED.

On March 21st the Court of Appeals at Albany unanimously affirmed the judgment of the courts below, in the Kemmler murder case, declaring the Electrical Execution as constitutional, and holding that no error was committed on the trial of the accused. Kemmler, being in the custody of the warden of State-prison at Auburn, had applied for a writ of habeas corpus, claiming that he had been sentenced by the court of Oyer and Terminer to undergo a "cruel and unusual" punishment, contrary to the Constitution of the State and of the United States, and was threatened with deprivation of life without due process of law by reason of such illegal sentence and judgment of the court.

The Court of Appeals, through Judge O'Brien, now finds that: "the mode proposed is not cruel within the meaning of the Constitution, though unusual. On the contrary, all the judges agree with the court below that it removes every reasonable doubt that the application of electricity to the vital parts of the human body, under such conditions and in the manner contemplated by the statute, must result in instantaneous and consequently painless death."

On the same day that the decision of the Court of Appeals was announced, Judge Martine in the Court of General Session sentenced a murderer by the name of Slocum, a former professional base-ball player, to be executed at Sing Sing prison early in May in accordance with the provision of the new law.

A DEFINITION OF "UNPROFESSIONAL CONDUCT."

In a bill to regulate the practice of medicine, recently introduced in the Oregon Legislature, there is a clause providing for the revocation of licenses for "unprofessional conduct," which is defined in the bill as follows: First, the procuring, or aiding or abetting in procuring; a criminal abortion. Second, the employing of what are known as "cappers" or "steerers." Third, the obtaining of any fee on the assurance that a manifestly incurable disease can be permanently cured. Fourth, the wilfully betraying of a professional secret. Fifth, all advertising of medical business in which untruthful and improbable statements are made. Sixth, all advertising of any medicines or of any means whereby the monthly periods of women can be regulated or the menses reëstablished if suppressed. Seventh, conviction of any offense involving moral turpitude. Eighth, habitual intemperance.—*N. Y. Med. Record.*

ALCOHOLISM AND DISEASE.

Dr. Krafft-Ebing, of the University of Vienna, recognized in Europe as authority, thinks that no proper legal measure should be neglected that may combat intemperance, and that the formation of societies to counteract it should be urged. He declares that in 29 per cent. of all cases, intemperance is found to be the sole or chief cause, and in 30 per cent. more one of the causes, of mental disease.

PRACTICAL NOTES.

STROPHANTHUS.

Strophanthus is a most excellent remedy, especially where we have to deal with cardiac complications, such as fatty degeneration, dilatation, or the weakness which occurs in the course of long-continued diseases, as typhoid, phthisis, and in pneumonia. In these cases much of the depression is due to the accumulation of carbonic acid in the blood, which is not thrown off by reason of the depressed condition of the circulation; the shortness of breath of which these patients complain may be overcome by the administration of a cardiac stimulant. Diffusible stimulants like ammonia and alcohol are not always at hand, and we have no remedy which is so well calculated to arouse the drooping faculties through the instrumentality of the heart as strophanthus. Nux vomica is also a valuable cardiac stimulant, but its influence is more general and less direct upon the heart, while digitalis is a drug which, if long continued, defeats the very purpose for which it is used. The initial effect is that of a cardiac stimulant, but it carries with it indirect or secondary effects which will destroy the influence we desire to produce. Digitalis causes a contraction of the finer vessels of the arterial system, and, in order to overcome this effect and secure a more perfect distribution of the blood throughout the tissues, the force of the heart must be greatly increased. Now, while digitalis increases the power of the cardiac muscle, the general effect of alcoholic preparations, as I have previously explained to you, is one which is not altogether desirable. Strophanthus possesses the advantage over all others in producing immediate and continued effects upon the cardiac muscle; when given in the form of a reliable tincture, but a few minutes will elapse before the action of the drug will be apparent upon the circulation, and this effect will last for some time. When used hypodermically, the effect upon the heart, as shown by sphygmographic tracings, will be noticeable for several days or a week. The judicious employment of this drug will often be the means of saving life by tiding over instances of great depression which are liable to occur in the course of serious diseases. Five drops of the tincture may be given in a little water, and the dose repeated in urgent cases in the course of one or two hours.—Aulde in *N. Y. Med. Journ.*

PORRIGO DECALVANS.

M. Brocq prescribes the following local treatment for porrigo decalvans. After shaving the head the scalp is washed with hot soap and water. After epilation of the affected regions, they are washed with a $\frac{1}{500}$ or $\frac{1}{250}$ solution of corrosive sublimate. A few hours later the following ointment is rubbed in: ℞. Hog's lard, 30 grams; oil of sweet almonds, 4 grams; glycerine, 4 grams; hydragyrum vitriolatum, 1 gram. The sublimate lotions and the ointment are applied mornings and evenings. Epilation is repeated three or four times. M. Brocq sometimes also uses the following lotion: ℞. Water, 400 grams; glycerine, 100 grams; corrosive sublimate, 1 gram. M. Vidal applies a lotion of essence of turpentine to the scalp, then tincture of iodide, and finally rubs a thick layer of vaseline over the parts, which are then covered with gum plaster or laminated gutta-percha. M. Lailler, after epilation, applies frictions of the following preparation with a piece of linen: ℞. Water, 950 grams; glycerine, 50 grams; bichloride of mercury, 1 gram; hydrochlorate of ammonia, 1 gram. The linen which has been used for the frictions is placed on the head, which is then covered with a cap. The scalp is washed once a week. The treatment lasts from twelve to fifteen months. M. Besnier, after epilation, washes the head daily with warm water containing $\frac{1}{100}$ of boric acid and soap. The affected spots are rubbed every evening with vaseline, to which a very small quantity of acetate or sulphate of copper (0.50 to 1 per cent.) is added. If the scalp shows signs of inflammation $\frac{1}{10}$ of boric acid is added to the vaseline instead of the copper.—Paris Corr. *British Medical Journal.*

CODEINE IN OVARIAN PAIN.

Dr. Freund, of Strassburg, has recently used codeine in a large number of cases of abdominal pain from various causes, with the view of testing the assertions of Dr. Brunton that the drug is of especial use in intestinal or pelvic pain. His results seem to indicate that Brunton's views are somewhat exaggerated.

Pain from acute uterine affections, such as dysmenorrhœa, Freund found, was not as quickly relieved with codeine as with morphine, and the relief was of shorter duration. In pain from pelvic exudates and tubal disease the drug was also of but little value. In ovarian pain, however, whether from prolapse, oöphoritis, perioöphoritis, or neuralgia, the relief afforded by codeine was prompt, unmistakable, and more or less permanent even when small doses were given. The amount usually administered was about half a grain three times daily in pill form, and in but few cases was it necessary to increase this quantity. His experience coincides with Brunton's that no disagreeable or harmful effects follow the use of the drug. It does not stupefy, diminish the appetite, nor constipate. He prescribes the pill for one month after an attack of ovarian pain, and warmly recommends the drug for the above conditions.—*Therapeutische Monatshefte*, November, 1889.—*Medical News.*

FOREIGN CORRESPONDENCE.

LETTER FROM PARIS.

(FROM OUR REGULAR CORRESPONDENT.)

Experiments demonstrating that Physical Fatigue is a powerful factor in the Production of Infectious Diseases—The Etiology of Asthenopia—Treatment of Endometritis by the Curettage of the Uterus—On Spontaneous Fracture in Tabetic Subjects—A Formula for an Antiseptic Paper.

In a note by Drs. Charrin and Roger published in the *Revue Scientifique*, the authors endeavored to afford experimental confirmation of the generally received view that physical fatigue is a powerful factor in the production of infectious disease. They subjected a number of white rats to severe exercise (running in a rotating cage) for four consecutive days, at seven hours each day. Eight of these tired out animals were then inoculated with attenuated anthrax virus, four animals in a normal condition of health being inoculated with the same virus at the same time, in order to serve as a standard of comparison. The result was, that seven of the eight animals belonging to the first series succumbed, while all the animals of the second series survived. They thus explain the curious tendency of epidemics to break out among soldiers during great manœuvres and on campaign, and they urge that many a soldier is rendered susceptible to disease by fatigue who would otherwise have escaped.

In the *Journal d'Oculistique*, Dr. Fano has published a note on the etiology of asthenopia, or rather on a point connected with the idiopathic or essential form; that is to say, that which is not accompanied by any alteration whatever appreciable with the ophthalmoscope, whether in the refractory media, or in the deep-seated membranes. Asthenopia generally affects young subjects, those who are obliged to exercise their eyes for a long time on small objects. Ophthalmologists are not in accord on the nature of asthenopia. Some consider it as the result of a lesion of the nervous substance of the retina, while others consider it as a fatigue of accommodation for the vision of near objects. Dr. Fano classes himself with those of the first category. Besides the excessive work of the eyes producing a progressive weakening of the nervous influx of the retina, there are three other causes, having the same mode of action, and producing asthenopia, without excessive work of the organ of vision, viz.: venereal excesses, onanism and seminal losses. Dr. Fano concludes his note with the recommendation that when one is consulted by subjects affected with asthenopia, and if no explanation of the affection is to be found in the anatomical state of the eye as revealed by the ophthalmoscope, nor in the troubles of refraction, nor in the profession followed by the subject, trouble of the genital functions should be sought for. In combating these troubles, one would often cure a disease of the eye which had resisted a great number of external and internal medicaments.

At a recent meeting of the Société de Chirurgie, Dr. Bouilly read a note on the treatment of endometritis by the "curettage" of the uterus. The author gave the results he obtained since 1887. He practiced eighty-one curettages and he was able to follow sixty-nine cases, forty-five of which were in the town and thirty-six in the hospital. His rule of practice is, if there exists a complication of ectropion of the neck, or any lesion of the annexes, he would practice curettage only if a more radical operation had been performed, and he reserves the curette for endometritis accompanied with metrorrhagia, muco-purulent discharges, and severe pains. After anæsthesia, he dilates the neck in four hours with laminaria and, after scraping the interior, he paints it with the tincture of iodine, creasoted oil or the chloride of zinc. At the end of four days, he withdraws the vaginal tampons and commences antiseptic washings, unless there are still stains on the dressing, in which case he continues them. Of the sixty-nine cases, he had thirty-nine cures, and the results were more striking in hæmorrhagic metritis. In glandular endometritis he says it is preferable to amputate the neck, as the curette cannot scrape the bottom of the hypertrophied cul-de-sacs. If the annexes are diseased, curettage is insufficient. Dr. Bouilly concluded his note with the remark that curettage of the uterine cavity alone is the best procedure. In certain cases where there is a commencement of salpingitis, curettage or scraping sometimes gives good results. But if the discharges are under the dependence of a disease of the ovaries, these must first be removed.

In the *Gazette des Hôpitaux*, Professor Verneuil publishes a note on spontaneous fracture in tabetic subjects. The note was founded on a case under his care of painless bimalleolar fracture in the leg of a tabetic woman. He objects, however, to the term spontaneous and prefers that of pathological fracture, as no bone would break unless subjected to pressure or blows from without, or to strong muscular contraction. Fracture in tabetic subjects occurs most frequently in the lower extremities, whilst in other forms of general osseous fragility, it occurs with equal frequency in both the upper and lower limbs. In tabetic fracture the larger bones are more frequently broken. In thirty-eight collected cases the fracture occurred seventeen times in the femur, ten times in the bones of the leg, six times in the bones of the forearm, and thrice in the clavicle. In nearly 50 per cent. of cases of tabetic fracture more than one bone is broken, the number varying from two to eight. In consequence of the usual absence of pain, the fracture of tabetic subjects is often

overlooked. Notwithstanding advanced pathological changes in the osseous structures, this form of fracture, especially when involving the diaphysis of a long bone, consolidates quickly, and with the formation of abundant callus.

The following formula for an antiseptic paper, published by the "Formulaire Mensuel," may be found useful: Bichloride of mercury, 20 grams; glycerine, 50 grams; distilled water, 1,000 grams; filtering paper, q. s. The paper should be soaked in the liquor, then dried and cut into small bands for the dressing of wounds. A. B.

AMERICAN MEDICAL ASSOCIATION.

List of Officers and Preliminary Programme of the Forty-first Annual Meeting,

To be held at Nashville, Tenn., May 20, 21, 22 and 23, 1890.

GENERAL OFFICERS.

President—E. M. Moore, M.D., New York.

Vice-Presidents—J. W. Jackson, M.D., of Missouri; H. H. Kimball, M.D., of Minnesota; J. H. Warren, M.D., of Massachusetts; T. B. Evans, M.D., of Maryland.

Treasurer—Richard J. Dunglison, M.D., lock box 1274, Philadelphia, Pa.

Permanent Secretary—Wm. B. Atkinson, M.D., 1400 Pine St., Philadelphia.

Local Secretary—G. C. Savage, M.D., Nashville, Tenn.

Librarian—C. H. A. Kleinschmidt, M.D., Washington, D. C.

Chairman Committee of Arrangements—Wm. T. Briggs, M.D., Nashville, Tenn.

The general Committee of Arrangements has very fully matured its plans. A social entertainment will be given at the Capitol on Tuesday, May 20, the first day on which the Association is to convene. We are advised that there are hotel accommodations for twenty-five hundred guests. The morning sessions will be held in the Vendome. The several Sections will be located in various halls convenient of access. At a point so central and so accessible there should be a full representation from all sections of the country. Not less than two thousand members should register at Nashville.

ADDRESSES AT THE GENERAL SESSIONS.

On General Medicine, by N. S. Davis, of Chicago, Ill.

On General Surgery, by Samuel Logan, of New Orleans, La.

On State Medicine, by Alfred L. Carroll, of New York.

PRELIMINARY PROGRAMME OF SECTIONS.

Section of Surgery and Anatomy.

Chairman—B. A. Watson, Jersey City, N. J.

Secretary—J. B. Deaver, Philadelphia, Pa.

1. Report of Several Cases of External Surgery of the Nose with Photographs, by Merrill Ricketts, Cincinnati.
2. Two Cases of Resection of Cæcum for Carcinoma with Remarks on Intestinal Anastomosis, by N. Senn, Milwaukee.
3. Left Inguinal Colotomy with Remarks upon other Operations, by J. McF. Gaston, Atlanta, Georgia.
4. Continuous Silk Suture for Wounds of the Intestine, with Experiments, by C. L. Lewis, New York.
5. The Management of Major Amputations, by John A. Wyeth, New York. Drs. Hunter McGuire and B. A. Watson will open the discussion.
6. Report of Cases of Hernia Relapsing after Different Methods of Radical Cure, by W. T. Bull, New York.
7. The Technique of Hysteromyomectomy, by Howard A. Kelly, Baltimore, Md.
8. The Dark Side of Supra Pubic Cystotomy with a Report of Cases, by H. O. Walker, Detroit, Mich.
9. John B. Deaver, Philadelphia.
10. The Necessary Peroxide of Hydrogen, by Robt. Morris, New York.
11. Excision in Irreducible Dislocation of Hip, by Charles Penrose, Philadelphia.
12. A Plea for Early Abdominal Section in Intestinal Obstruction, by J. G. Carpenter, Stanford, Ky.
13. Novel and Ideal Method of Knee-Joint Excision and Exploration, by T. S. K. Morton, Philadelphia.
14. Surgical Treatment of Biliary Obstruction, by Henry O. Marcy, Boston.
15. Joseph Price, Philadelphia.
16. Joseph Hoffman, Philadelphia.
17. R. H. Harte, Philadelphia.
18. Shot Wound of the Intestine with Report of Cases, by David Barrow, Lexington, Ky.
19. Operation of Radical Cure of Hernia in Early Infancy, by Thomas H. Manly, New York.
20. Paper on New and Improved Surgical Pump, by Elmer Lee, Chicago.
21. Treatment of Flat-Foot by Thomas' Method, by W. R. Townsend, New York.
22. Report of Gun Shot Wound of Brain, by J. Lee McComas, Oakland, Md.

Section of Obstetrics and Diseases of Women.

Chairman—Wm. Warren Potter, Buffalo, N. Y.

Secretary—Joseph Hoffman, Philadelphia.

1. Intra-Ligamentary Cysts, by W. H. Wathen, Louisville, Ky.
2. Primary and Ultimate Results of Vaginal Hysterectomy for Cancer, by Charles A. L. Reed, Cincinnati, Ohio.
3. Title not announced, Rufus B. Hall, Cincinnati, Ohio.
4. Gonorrhœal Disease of the Uterine Appendages, by J. M. Baldy, Philadelphia, Pa.
5. A Plea for Early Vaginal Hysterectomy in Cancer of the Uterus, by Franklin H. Martin, Chicago, Ill.
6. A Retrospect of Pelvic Surgery, by Joseph Price, Philadelphia, Pa.
7. The Treatment in Placenta Prævia, by Aug. P. Clarke, Cambridge, Mass.
8. Moot Points in the Doctrine of Placenta Prævia, by W. W. Jaggard, Chicago, Ill.
9. The Treatment of Placenta Prævia, based on an Experience of Thirty-four Cases, by G. H. Balleray, Paterson, N. J.
10. She Supposed it was Her Change of Life, by A. Vander Veer, Albany, N. Y.
11. Title not announced, by J. H. Kellogg, Battle Creek, Mich.
12. A Résumé of the Ideas of Paul Portal's Pratique des Accouchments, by John Bartlett, Chicago, Ill.

13. Psychical Results of Gynecological Operations, by I. S. Stone, Lincoln, Va.
14. Stricture of the Urethra in Women, by Ely Van de Warker, Syracuse, N. Y.
15. Title not announced, by John B. Deaver, Philadelphia, Pa.
16. Title not announced, by C. P. Penrose, Philadelphia, Pa.
17. Antiseptics in Obstetrics, by T. B. Greenly, West Point, Ky.
18. Hyperemesis Gravidarum, by E. W. Mitchell, Cincinnati, O.
19. Uterus Bilocularis, by L. H. Dunning, Indianapolis, Ind.
20. The Great Utility of Bleeding in Puerperal Convulsions, by John G. Meacham, Racine, Wis.
21. Title not announced, by Wm. E. Ashton, Philadelphia, Pa.
22. A Plea for the General Adoption of the Traction Forceps, by Joseph Hoffman, Philadelphia, Pa.
23. Surgical Treatment of Non-Pedunculated Abdominal Tumors, by Henry O. Marcy, Boston, Mass.
24. Extra-Uterine Pregnancy, with Cases, by E. E. Montgomery, Philadelphia, Pa.
25. Laparatomy for the Purpose of Restoring the Functions of the Tubes and Ovaries, by William M. Polk, New York, N. Y.
26. Abdominal Section; its Practical Success, by R. Stansbury Sutton, Pittsburgh, Pa.
27. The Intra-Peritoneal Ligature, by L. S. McMurtry, Louisville, Ky.
28. A New Operation for the Relief of Prolapse of the Anterior Vaginal Wall, by Andrew F. Currier, New York, N. Y.
29. Diseases of the Female Pelvic Organs, and when to Operate by Abdominal Section, by M. B. Ward, Topeka, Kansas.
30. Fistulous Escape of Ligatures After Ovariotomy, or Abdominal Operations, by Marie B. Werner, Philadelphia, Pa.
31. Drainage in Abdominal Surgery, by George Erety Shoemaker, Philadelphia.
32. The Diagnosis and Treatment of Ectopic Pregnancy, by Neil Macphatter, Denver, Col.

The attention of authors of incomplete titles is respectfully invited to the importance of forwarding to the Chairman at once a full subject title of their papers.

This list is made up in the order of the reception of the titles; the papers will be grouped by subjects as near as possible for the meeting. Authors whose titles are not announced are requested to send them to the Chairman without delay.

Section of State Medicine.

Chairman—John B. Hamilton, Washington, D. C., Surgeon-General U. S. M. H. S.

Secretary—Francis S. Bascom, Salt Lake City, Utah.

FIRST DAY.

1. Annual Address of the Chairman.
2. Report of the Committee on Meteorology, by N. S. Davis, Chairman.
3. Report of the Committee on School Hygiene, by D. F. Lincoln, Chairman.
4. The Hygiene of the Eyes of School Children, by Dudley S. Reynolds.

DISCUSSION ON FOREGOING PAPERS.

5. Government Aids to Public Health, by Walter Wyman, M. H. S.

SECOND DAY.

1. The Causation of Influenza and some Allied Diseases, with Suggestions for their Prevention, by Henry B. Baker, President American Public Health Association.
2. Observation on the Symbiosis of certain Microörganisms, as influenced by Low Temperatures, by Jos. J. Kinyoun, M. H. S.

DISCUSSION ON FOREGOING PAPERS.

3. Paper, subject to be announced, by George H. Rohé.
4. Election of Section officers for ensuing year.

EVENING SESSION.

The special order of the evening will be a paper by George M. Sternberg, U. S. A. It will be illustrated by the stereopticon.

THIRD DAY.

1. Our Urban African Population, by J. Berrien Lindsley.
2. Los Angeles County, Cal., as a Home for the Aged, by Jay H. Utley.
3. Advantages and Disadvantages of High Altitudes, by T. G. Horn.
4. Bacteriology, by Frank Billings.
5. A Comparison between our College Work and that of European Medical Schools, with some Thoughts on Free Trade in Medical Diplomas Manufactured Abroad, by S. O. L. Potter.
6. Paper, subject to be announced, by J. R. Briggs.
7. Miscellaneous Business.

Section of Ophthalmology.

Chairman—S. C. Ayres, Cincinnati, O.

Secretary—E. J. Gardiner, Chicago, Ill.

1. Address by the Chairman.
2. The Uses of Jequirity, by Wm. Cheatham, Louisville, Ky.
3. Jequirity in the Treatment of Diphtheritic Conjunctivitis, by A. E. Prince, Jacksonville, Ill.
4. A Danger in the Use of Jequirity heretofore Unmentioned, by T. E. Murrell, Little Rock, Ark.
5. Enucleation in Panophthalmitis, by J. E. Sinclair, Nashville, Tenn.
6. Functional Nervous Diseases, by A. R. Baker, Cleveland, O.
7. Sympathetic Ophthalmia, by C. M. Hobbey, Iowa City, Ia.
8. Report of a Case of Sympathetic Inflammation Two Weeks after Enucleation of the Injured Eye, by Geo. H. Goode, Cincinnati, O.
9. Tobacco; Its Effects upon the Eye-Sight, by Flavel H. Tiffany, Kansas City, Mo.
10. A Simple and Reliable Astigmometer, by F. C. Hotz, Chicago, Ill.
11. The Necessity for more Care in the Setting of Lenses when Prescribed for the Correction of Eye Faults, by J. J. Chisolm, Baltimore, Md.
12. Some Observations on the Correction of Low Degrees of Astigmatism, by T. E. Murrell, Little Rock, Ark.
13. Progressive Hypermetropic Astigmatism, by W. T. Montgomery, Chicago, Ill.
14. A Clinical Study of a Series of Cases Exhibiting Slight Macular and Perimacular Changes, by G. E. de Schweinitz, Philadelphia, Pa.
15. Report of a Case of Transplantation without a Pedicle for Cicatricial Ectropion. Blepharoplasty by Wolf's Method, by J. Morrison Ray, Louisville, Ky.
16. Some Points worthy of Consideration in the Operation for the Extraction of Cataract, by J. W. Wright, Columbus, O.
17. Case of Pemphigus of the Eyelids, by D. Emmett Welsh, Grand Rapids, Mich.
18. Tests of Visual Acuteness and the Standard of Normal Vision, by Edw. Jackson, Philadelphia Pa.
19. (a) Report of a Case of Left Lateral Homonymous Hemianopsia Associated with a Wound of the Occipito-parietal Region of the Right Side of the Head.
20. (b) Exhibition of an Instrument for the Measurement of the Radius of Curvature of Lenses, by R. Tilley, Chicago, Ill.
21. The Amblyopia of Strabismus, by Jno. F. Fulton, St. Paul, Minn.
22. The Increase of Blindness in the United States and

the Importance of its Prevention, by J. L. Minor, Memphis, Tenn.

23. Eye Strain as a Cause of Headaches, by B. J. Baldwin, Montgomery, Ala.

24. The full Correction of Hyperopia with Convex Glasses, by W. Franklin Coleman, Chicago, Ill.

25. Treatment of Conjunctivitis Granulosa, by Peter D. Keyser, Philadelphia, Pa.

26. A Case of Static Lenticular Astigmatism, Acquired by Long-continued Use of Spectacles having a Faulty Position. By George Frothingham, Detroit, Mich.

27. (*a.*) Hæmorrhage after Cataract Extraction; (*b.*) Boracic Acid and Massage in Pannus, by C. R. Holmes, Cincinnati, O.

Section of Laryngology and Otology.

Chairman—John O. Roe, Rochester, N. Y.

Secretary—Frank H. Potter, Buffalo, N. Y.

1. The Value of Different Operations for Nasal Stenosis, by Max Thorner, Cincinnati, O.

2. An Anomalous Condition of the Human Voice, by Alexander W. MacCoy, Philadelphia, Pa.

3. Suggestions on the Use of Electricity in Ear Diseases, by E. L. Jones, Florence, Ala.

4. Glandular Hypertrophy at the Base of the Tongue, by A. B. Thrasher, Cincinnati, O.

5. Fractures and Concussions (Contra Coup) of the Temporal Bone as a Cause of Deafness, by Laurence Turnbull, Philadelphia, Pa.

6. The Galvano-Cautery and its Use in Certain Nasal Affections, by Wm. Cheatham, Louisville, Ky.

7. Pathology and Treatment of Tinitus Aurium, by A. A. Hubbell, Buffalo, N. Y.

8. The Importance of Surgical Means Applied to the Naso-Pharynx in the Relief of Naso-Pharyngeal and Middle Ear Catarrh, by C. W. Richardson, Washington, D. C.

9. How Can We Best Utilize for Scientific Study the Clinical Material so Abundant in Large Dispensaries? by O. B. Douglas, New York, N. Y.

10. Salol in Acute Pharyngitis and Tonsillitis, by Jonathan Wright, Brooklyn, N. Y.

11. Imperforate Auditory Canal, by Seth S. Bishop, Chicago, Ill.

12. On Laryngismus, by J. H. Bryan, Washington, D. C.

13. Hygiene of the Upper Air Tract, by J. E. Schadle, St. Paul, Minn.

14. Note on Nasal Hæmorrhage, by Frank H. Potter, Buffalo, N. Y.

15. Discussion on Croup and Diphtheria:

I. Their Identity, by D. Bryson Delavan, New York, N. Y.

II. Their Duality, by J. Solis-Cohen, Philadelphia, Pa.

III. Treatment: (*a*) Medical, by William H. Daly, Pittsburg, Pa. (*b*) Surgical, by F. E. Waxham, Chicago.

16. Throat Deafness, by E. Fletcher Ingals, Chicago.

17. Surgical Treatment of Chronic Spasm of the Larynx, by J. P. Creveling, Auburn, N. Y.

18. Tinnitus Aurium and Nasal Surgery, by H. Holbrook Curtis, New York.

19. Precautions to be Observed in Intra-Nasal Operations, by Carl Seiler, Philadelphia, Pa.

20. Aural Complications from Chronic Catarrhal Inflammations of the Nose and Throat, by W. I. Edwards, Nashville, Tenn.

Papers have also been promised by R. Norris Wolfenden, London, England; Carl Seiler, Philadelphia; E. L. Shurly, Detroit; Clarence C. Rice, New York, and M. F. Coomes, Louisville, Ky.

All those contemplating reading papers before this Section are requested to forward their titles to the Secretary at once.

Section of Diseases of Children.

Chairman—I. N. Love, St. Louis, Mo.

Secretary—E. F. Brush, Mt. Vernon, N. Y.

1. Chloral Hydrate in the Treatment of Scarlatina, by J. C. Wilson, Philadelphia, Pa.

2. The Value of Sulphonal in Children's Diseases, by W. C. Wile, Danbury, Conn.

3. Value of Atropia in Enuresis, by R. B. James, New York, N. Y.

4. Croup, by E. R. Early, Ridgeway, Pa.

5. Significance of High Temperature in Children, by W. L. Stowell, New York, N. Y.

6. Therapeutical Value of Antipyrin in Diseases of Children, by S. Henry Dessan, New York, N. Y.

7. Phenacetin in Whooping-Cough, by John T. Winter, Washington, D. C.

8. Further Observations Upon Tooth and Mouth Disease in the Relation to Human Scarlatina as a Prophylactic, by I. W. Stickler, Orange, N. J.

9. Tinea Capitis, by H. T. Dixon, Evansville, Ind.

10. Overmedication During Childhood, by B. F. Hart, Sweetsprings, Mo.

11. The Psychical Factor in Pædiatrics, by Frank Woodbury, Philadelphia, Pa.

12. Milk Sugar in Infant Feeding, by E. F. Brush, Mt. Vernon, N. Y.

Section of Medical Jurisprudence.

Chairman—T. B. Evans, Baltimore, Md.

Secretary—T. D. Crothers, Hartford, Conn.

The following is a list of titles of papers which will be read before this Section. The papers in the first and third sessions will be arranged differently, and include many others that are not announced.

FIRST SESSION.

Clinical Jurisprudence.—Reports on medico-legal questions occurring during the year. Relation of cases, etc.

1. President's Address, Responsibility in Dipsomania, by Thomas B. Evans, Baltimore, Md.

2. Medico-Legal Significance of Facts Common to Insanity and Inebriety, by T. L. Wright, Bellefontaine, O.

3. The Psychopathic Sequences of Hereditary Alcoholic Entailments, by Charles H. Hughes, St. Louis, Mo.

4. Some New Medico-Legal Questions Relating to Inebriety, by T. D. Crothers, Hartford, Conn.

5. The Medico-Legal Relation of the Physician to the Inebriate and Inebriety, by I. N. Quimby, Jersey City, N. J.

6. The Need of a New Criminal Jurisprudence Affecting Inebriety, by Norman Kerr, London, Eng., delegate from British Medical Association.

7. Subject not received, by Lewis D. Mason, Brooklyn, N. Y.

8. The Medico-Legal Relations of Central Paralysis, by D. R. Brower, Chicago.

SECOND SESSION.

Surgical Jurisprudence.—Papers on medico-legal questions in surgery and toxicology, etc. Discussion.

1. Medico-Legal Relations of Abdominal Surgery, by Albert Vanderveer, Albany, N. Y.

2. Medico-Legal Bearings of the Battey Operation, by Robert Battey, Rome, Ga.

3. What is the Medico-Legal Status of the Abdominal Surgeon? by William Porter, Buffalo, N. Y.

4. Medico-Legal Aspects of Gunshot Wounds of the Abdomen, by Nicholas Senn, Milwaukee, Wis.

5. The Responsibility in Cases of Intestinal Obstruction, by B. T. Shimwell, Philadelphia, Pa.

6. Some Special Reasons Why the Laparotomists Should Consider the Medico-Legal Aspects of Abdominal Surgery, by Henry O. Marcy, Boston, Mass.

7. Exploratory Laparotomy from a Medico-Legal Standpoint, by William C. Wile, Danbury, Conn.

8. The Medico-Legal Responsibility in Abdominal Surgery, by J. D. S. Davis, Birmingham, Ala.

9. The Medico-Legal Questions Which Arise from the Mistakes of Abdominal Tumors for Pregnancy, by David W. Yandell, Louisville, Ky.

10. The Legal Responsibility in Surgery of the Abdomen, by Thomas H. Manly, New York, N. Y.

THIRD SESSION.

Medico-legal question in the practice of medicine, including obstetrics and insanity, etc. Discussion.

1. The Legal Aspects of Spinal Concussion, by S. V. Clevenger, Chicago, Ill.
2. Medico-Legal Relations Between Railway Surgeons, the Company and the Injured, by R. Harvey Reed, Mansfield, O.
3. Traumatic Neurosis: Its Medico-Legal Relations, by Frederick Peterson, New York, N. Y.
4. Injury Inflicted by Unscrupulous Malpractice Suits, by Wm. F. Waugh, Philadelphia, Pa.
5. Newspaper Canards as Factors in the Insane Hospital Management, by James G. Kiernan, Chicago, Ill.
6. The Relation of the Physician to the Problem of the Correction of Vice, by G. Frank Lydston, Chicago.
7. Some Facts Concerning the Jurisprudence of Medical Electricity, by Clark Bell, Esq., New York, N. Y.

Authors of papers whose titles are not announced, and others who expect to read papers or present records of cases, are requested to send them to the Secretary at Hartford, Conn., at once.

Section of Practice of Medicine, Materia Medica and Physiology.

All communications should be addressed to the Chairman, Dr. J. H. Musser, Fortieth and Locust streets, Philadelphia, as the Secretary has been called to Europe.

FIRST DAY.

1. Address of Chairman.
2. Filaria, with the presentation of a patient, by — De Saussure, Charleston, S. C.
3. Heart Affection at High Altitudes, by S. E. Solly, Colorado Springs, Col.
4. Calomel as a Diuretic, by George Fackler, Cincinnati, O.
5. The Treatment of Insomnia and Neuralgia by Butyl Chloral Hydrate, by Hobart A. Hare, Philadelphia.
6. Recent Clinical Notes on Exophthalmic Goitre, by E. D. Furgeson, Troy, N. Y.
7. On the Treatment of Bright's Disease With Chloride of Sodium, by A. Memminger, Charleston, S. C.
8. Cleanliness and Pure Air in Maternity Work, by Joseph Price, Philadelphia.
9. Antiseptics, by Hiram Corson, Conshohocken, Pa.
10. Rheumatism and its Treatment by the Turkish Bath, by C. H. Shepard, Brooklyn, N. Y.
11. The General Action of Phenacetin, by George H. Pierce, Danbury, Conn.
12. Clinical Notes on Alterations in the Respiratory Rhythm, by Wm. A. Edwards, San Diego, Cal.

SECOND DAY.

13. The Continued Fevers of the South. Discussion opened by W. W. Johnston, Washington, D. C., and J. R. Furniss, Selma, Ala. 1. Their Nature, by John P. Wall, Tampa, Fla.; E. Marechal, Mobile, Ala.; R. Matas, New Orleans, La.; T. J. Happel, Trenton, Tenn.; D. C. Ewing, Batesville, Ark.; F. L. Sim, Memphis, Tenn.; J. C. Shepard, Winchester, Tenn. 2. The Differential Diagnosis, by George Dock, Galveston, Texas; B. F. Humphries, Hawkins, Texas; James E. Reeves, Chattanooga, Tenn. 3. The Renal Sequelæ of Malaria, by A. Memminger, Charleston, S. C.
14. The Ocular Complications of Malaria, by G. E. de Sweinitz.
15. Continued Fever of Charleston, S. C., or Gastro-Hepatic Fevers, by Thomas Legare, Charleston, S. C.
16. Malaria and the Causation of Periodic Fevers, by H. B. Baker, Lansing, Mich.
17. Chemical and Bacteriological Examination of Some Water Supposed to Have Caused Typhoid Fever, by Victor C. Vaughan, Ann Arbor, Mich.
18. Specific Treatment of Typhoid Fever, by J. H. Van Eman, Kansas City, Mo.
19. Naphthol in Typhoid Fever, by L. Wolff, Philadelphia.
20. Has Progress Been Made in the Medicinal Treatment of Typhoid Fever? by T. J. Happel, Trenton, Tenn.
21. The Modern Treatment of Rheumatism, by John V. Shoemaker, Philadelphia.
22. Facial and Thoracic Deformities Incident to Obstruction of the Naso-Pharynx, by W. E. Casselberry, Chicago.
23. Sulphonal, the Conditions and Limitations of its Value as a Hypnotic, by Henry M. Field, Newton, Mass.
24. Neurasthenia, by I. D. Wiltrout, Hudson, Wis.
25. A Substitute for the Kymographeon, by John P. Sawyer.

THIRD DAY.

26. Abuses of Antipyretic Medication, by S. Solis-Cohen, Philadelphia, Pa.
27. Oxygen, its True Value as a Therapeutic Agent, by J. M. French, Cincinnati, O.
28. Note on a Case of Fatal Leukæmia following Prolonged Lactation, by W. W. Jaggard, Chicago.
29. The Therapy of Tuberculosis Pulmonum, by James T. Whittaker, Cincinnati, O.
30. The Therapy of Phthisis Pulmonalis, by E. L. Schurley, Detroit, Mich.
31. Bright's Disease as a Neurosis, by John A. Benson, Dunning, Ill.
32. Functional Albuminuria, by Wm. B. Davis, Cincinnati, O.
33. On the Management of Obstinate Dropsies, by Jas. Tyson, Philadelphia.
34. Reform Therapeutics, by Joseph H. Warren, Boston, Mass.
35. Hydrophobia: (*a*) Clinical Study of Hydrophobia, with Statistics and Report of Cases, by Harold N. Moyer, Chicago; (*b*) Pasteur's Preventive Inoculation of Rabies, by A. Lagorio, Chicago. Discussion by C. W. Dulles, Philadelphia.
36. Antiseptics, by Hiram Corson, Conshohocken, Pa.

FOURTH DAY.

37. Consideration of Auto-intoxication from Nitrogenous Elements of the Food when Taken in Excess, by John P. Sawyer, Cleveland, O.
38. Influenza, by J. B. Johnson, Washington, D. C.
39. Water, the Parallelism of its Uses in the Physical World and the Human Cosmos, by G. W. Drake, Chattanooga, Tenn.
40. Some of the Vagaries of the Grip, by C. F. Ulrich, Wheeling, W. Va.
41. Present Status of Forced Respiration, by George E. Fell, Buffalo, N. Y.
42. Pneumonia and Bronchitis following La Grippe, by D. M. Wick, New Hartford, Iowa.
43. On the Treatment of Bright's Disease with Chloride of Sodium, by A. Memminger, Charleston, S. C.
44. General Aspects of Bacteriology and Medicine, by H. C. Markham, Independence, Iowa.
45. The Etiology, Pathology and Treatment of Typhoid Fever, by J. McFadden Gaston, Atlanta, Ga.
46. Title not supplied, by Geo. Dock, Galveston, Tex.
47. Bacteriology in Medicine, by Frank Billings, Chicago, Ill.

Section of Dermatology and Syphilography.

Secretary—William T. Corlett, Cleveland, O.

FIRST DAY, TUESDAY, MAY 20.

Section meets at 2 P. M. each day.

1. Address by the Chairman, Recent Advances in Dermatology and Syphilography.
2. The Relative Value of Mercury and the Iodine Compounds in the Treatment of Syphilis. Discussion by L. Duncan Bulkley, New York, William T. Corlett, Cleveland.
3. A Peculiar Case of Addison's Disease, by A. H. Ohmann-Dumesnil, St. Louis.
4. The Care and Treatment of the Nails, by J. V. Shoemaker, Philadelphia.

5. Herpes Zoster Gangrinosa of Koposi. A Report of Two Cases, by B. Merrill Rickets, Cincinnati.

6. Some Recent Observations of Leprosy, by P. S Abraham, London.

Appointment of Committee to nominate officers for the ensuing year.

SECOND DAY, MAY 21.

Election of Officers (time fixed by By-Laws).

7. The Etiology and Treatment of Acne. Discussion by Carl Seiler, Philadelphia, B. Merrill Ricketts, Cincinnati.

8. On the Preparation and Employment of Ointments in Diseases of the Skin, by L. Duncan Bulkley, New York.

9. Diseases of the Skin of Nervous Causation. A Report of Two Cases by William T. Corlett, Cleveland.

10. A few more Remarks on Dermatitis Herpetiformis, by A. Ravogli, Cincinnati.

11. Answers to Questions Deposited in Question Box Relating to Dermatology and Syphilography.

THIRD DAY, THURSDAY, MAY 22.

12. Sycosis, its Pathology and Treatment. Discussion by J. V. Shoemaker, Philadelphia, A. Ravogli, Cincinnati.

13. Demonstration of Syphilitic Spores in Blood, by Ephraim Cutter, New York.

14. The Scarlatiniform Erythema of Typhoid Fever, by A. H. Ohmann-Dumesnil, St. Louis.

15. Massage in Skin Diseases, by J. Leslie Foley, Montreal.

16. An Eruption Following the Use of Boracic Acid, with Colored Plates, by William T. Corlett, Cleveland.

17. Further Observations on Paget's Disease of the Nipple, by Louis Wickham, of the Hôpital St. Louis, Paris.

18. Answers to Questions Deposited in Question Box.

Section of Dental and Oral Surgery.

Chairman—J. L. Williams, Boston, Mass.

Secretary—Eugene S. Talbot, Chicago, Ill.

1. Address by Chairman, J. L. Williams, of Massachusetts.

2. Relation of Tropho-Neuroses to Disease of the Mouth and Jaws, with Special Reference to Syphilitic Necrosis, by G. Frank Lydston, Chicago, Ill.

3. How the Vascular Supply is Connected with the Teeth, by A. O. Hunt.

4. Vascular Tumors of the Mouth, and Treatment by Injection, by John S. Marshall, Chicago, Ill.

5. Electro-Therapeutics, by John L. Gish.

6. The Value of Illustration in the Lecture-Room, by L. D. McIntosh, Chicago, Ill.

7. Adenoid Growths and their Effect on the Mouth, by E. E. Briggs.

8. Cure for Cleft Palate by a Double Flap Operation and Closure with the Buried Tendon Suture, by Henry O. Marcy, Boston, Mass.

9. Hereditary Dental Anomalies, by Wm. S. Sherman.

10. Diseases of the Gums, and their Treatment, by J. Tait.

11. Irregularities of the Teeth Caused by Neurotic Conditions, by E. S. Talbot, Chicago, Ill.

Committee on Dietetics.

1. Diet in Consumption, by Herbert Judd, Galesburg, Ill.

Instructions to Delegates.

"The delegates shall receive their appointment from permanently organized State Medical Societies, and such County and District Medical Societies *as are recognized by representation in their respective State Societies*, and from the Medical Department of the Army and Navy, and the Marine-Hospital Service of the United States.

"Each State, County and District Medical Society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number; *provided*, however, that the number of delegates for any particular State, Territory, county, city or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the Association."

Members by Application.—Members by Application shall consist of such members of the State, County and District Medical Societies entitled to representation in this Association as shall make application to the Treasurer and accompany said application with a certificate of good standing, signed by the President and Secretary of the society of which they are members, and the amount of the annual membership fee, five dollars. They shall have their names upon the roll, and have all the rights and privileges accorded to *permanent members*, and shall retain their membership upon the same terms.

The following resolution was adopted at the session of 1888:

"That in future each delegate or permanent member shall, when he registers, also record the name of the Section, if any, that he will attend, and in which he will cast his vote for Section officers.

Secretaries of Medical Societies as above designated are earnestly requested to forward, *at once*, lists of their delegates.

Also, that the Permanent Secretary may be enabled to erase from the roll the names of those who have forfeited their membership, the Secretaries *are, by special resolution*, requested to send him annnally a corrected list of the membership of their respective societies.

AMENDMENTS TO THE BY-LAWS.

Offered by Dr. A. L. Gihon, United States Navy.

That the first day of the meeting of this Association shall be on the first Wednesday of May or June respectively, instead of Tuesday.

By Dr. X. C. Scott, Ohio:

That the Committee on State Medicine be abolished, inasmuch as the Section on State Medicine occupies the entire ground.

RAILROAD ARRANGEMENTS.

Members of the Association who design to attend the annual meeting at Nashville, May 20, 1890, will be granted a reduction in their return railroad fare only, under the following conditions:

First.—Each person must purchase a first-class ticket (either limited or unlimited) through to the place of meeting, for which he will pay the regular tariff fare, and upon request the ticket agent will issue to him a certificate of such purchase (Form 2).

Second.—If through tickets cannot be procured at the starting point the person will purchase to the most convenient point were such through ticket can be obtained, and there repurchase through to the place of meeting, requesting a certificate properly filled out by the agent at the point where the repurchase is made.

Third.—The reduced rate for the return journey will only apply to points to which through tickets are on sale at the place of meeting, and at which through tickets to the place of meeting were purchased. If through tickets to the starting point can not be procured at the place of meeting, the person will purchase to the most convenient point to which such through ticket can be obtained.

Fourth.—Tickets for the return journey will be sold by the ticket agents at the place of meeting, at one-third the highest limited fare, only to those holding certificates (Form 2), signed by the ticket agent at the point where the through ticket to the place of meeting was purchased, and countersigned by the secretary or clerk of the convention, certifying that the holder has been in attendance upon the convention.

Fifth.—It is absolutely necessary that a certificate be procured, as it indicates that the full fare has been paid

for the going journey, and that the person is therefore entitled to the excursion fare returning. It will also determine the route via which the ticket for return journey should be sold, and without it no reduction will be made.

Sixth.—Tickets for return journey will be available for continuous passage only, no stop-over privileges being allowed on tickets sold at less than full fare. Certificates will not be honored unless presented within three days after the date of adjournment of the convention.

Seventh.—Ticket agents will be instructed that excursion fares will not be available unless the holders of certificates are properly identified, as above described, by the secretary or clerk, on the certificate, which identification includes the statement that one hundred or more persons, who have purchased full fare tickets for the going passage, and hold properly receipted certificates, have been in attendance at the meeting.

The certificates are not transferable, and the signature affixed at the starting point, compared with the signature to the receipt, will enable the ticket agent to detect any attempted transfer.

N.B. Please read carefully the above instructions; be particular to have the certificates properly filled and certified by the railroad agent from whom you purchase your going ticket to the place of meeting, as the reduction on return will apply only to the point at which such through ticket was purchased.

Committee of Arrangements, Dr. William T. Briggs, Nashville, Tenn. WM. B. ATKINSON, Perm. Sec'y.

BOOK REVIEWS.

CANCER OF THE RECTUM ESPECIALLY CONSIDERED WITH REGARD TO ITS SURGICAL TREATMENT. Jacksonian Prize Essay. By HARRISON CRIPPS, F.R.C.S. Asst. Surg. St. Bartholomew's Hosp.; Jacksonian Prize Essayist, R.C.S., 1876; Asst. Surg. Royal Free Hosp., etc. Third Edition. London: J. and A. Churchill. 1890.

This is the ideal of scientific monographs. The original essay has undergone considerable alterations since it was first presented by the author, and as each alteration has been the result of much experience and observation, in its present form the work forms a most valuable contribution to surgical literature. The illustrations which are models of accuracy and beauty, deserve all the more praise from the fact that they were nearly all drawn by Mr. Cripps, while some of them were lithographed by him as well. The illustrations are very numerous, and pertain to the normal and morbid anatomy, and histology of the parts.

The subject matter, which is clear and concise, is divided into the following topics:

1. Anatomy of the rectum and the function of its mucous membrane.
2. Cancer of the rectum—Etiology.
3. Cancer of the rectum—Pathology.
4. Cancer of the rectum—Symptoms.
5. Cancer of the rectum—Differential diagnosis.
6. Cancer of the rectum—Treatment by excision.
7. Cancer of the rectum—Treatment by colotomy.
8. Cancer of the rectum—Palliative treatment.
9. Cancer of the rectum—Tables of cases.
10. Cancer of the rectum—Selected illustrative cases.

MISCELLANY.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from April 19, 1890, to April 25, 1890.

By direction of the Secretary of War, Major Washington Matthews, Surgeon, is relieved from duty in the Surgeon-General's office, this city, and will report in person to the commanding officer, Ft. Wingate, N. M., for duty at that station. Par. 6, S. O. 90, A. G. O., Washington, April 17, 1890.

By direction of the Secretary of War, Major Peter J. A. Cleary, Surgeon, is relieved from duty at Ft. Wingate, N. M., and will report in person to the commanding officer, Mount Vernon Bks., Ala., for duty at that station, and by letter to the commanding General, Div. of the Atlantic. Par. 6, S. O. 90, A. G. O., Washington, April 17, 1890.

Capt. Louis A. La Garde, Asst. Surgeon, is granted leave of absence for twenty-three days, on account of sickness, upon surgeon's certificate of disability, in extension of leave of absence for seven days granted him by order 17, Ft. Assiniboine, Mont., with permission to apply to the Adjutant General of the Army for an extension of one month on Surgeon's certificate of disability. Par. 4, S. O. 43, Dept. Dak., April 14, 1890.

Capt. Henry I. Raymond, Asst. Surgeon U. S. A. (Newport Bks., Ky.) is hereby granted leave of absence for twenty-five days, to commence on or about May 2, 1890. Par. 5, S. O. 91, Div. of the Atlantic, April 19, 1890.

By direction of the Secretary of War, the following changes of stations of officers of the Medical Department are ordered:

Capt. Henry S. Kilbourne, Asst. Surgeon, from Vancouver Bks., Wash., to Willet's Point, N. Y.

Capt. William W. Gray, Asst. Surgeon, from Ft. Maginnis, Mont., to Ft. Sherman, Idaho.

Capt. John M. Banister, Asst. Surgeon, from Ft. Sherman, Idaho, to Ft. Stanton, N. M. Par. 1, S. O. 93, A. G. O., April 21, 1890.

By direction of the Secretary of War, Major Robert H. White, Surgeon, now on duty at Ft. Meyer, Va., will report in person to the Superintendent of the U. S. Military Academy, West Point, N. Y., for temporary duty as post surgeon during the absence of Major Henry McElderry, Surgeon, as a member of the Army Medical Board, New York City. Upon the return of Major McElderry to duty at West Point Major White will return to his proper station. Par. 4, S. O. 94, A. G. O., Hdqrs. of the Army, April 22, 1890.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending April 26, 1890.

W. K. Scofield, commissioned a Medical Director from February 8, 1890.

Daniel McMurtrie, commissioned a Medical Inspector from February 8, 1890.

E. S. Bogert, commissioned an Asst. Surgeon from April 16, 1890.

L. W. Spratling, commissioned an Asst. Surgeon from April 16, 1890.

Surgeon H. M. Martin, reported his return home and granted sick leave.

Medical Inspector T. Woolverton, detached from Navy Yard, Washington, D. C., and wait orders.

P. A. Surgeon H. G. Beyer, ordered to delay reporting on board the "Yantic" until further instructed.

dignitary in moments snatched from duties as groom and man of all work—services gladly rendered in return for the opportunities of learning derived from his associations. In the winters of 1754, '55 and '56, Dr. William Hunter, who must not be confounded with the famous English anatomist of that name, gave a course of lectures upon anatomy and surgery in Newport, R. I. The first systematic instruction in surgery, however, was given by Dr. William Shippen, Jr., in Philadelphia. A pupil of the Hunters in London, he was encouraged, by the success of a course of anatomical lectures given in 1762, to join, in 1765, with Dr. John Morgan in the organization of the Medical College of Philadelphia, the precursor of the University of Pennsylvania, in which he held the chair of anatomy and surgery. Instruction in surgery was also given in the medical department of Kings, now Columbia College, in 1767, while the famous Dr. John Warren, of Boston, in 1782 and for thirty-three years following, gave instruction in this branch at Harvard College. From these small beginnings surgical instruction has developed into the great system with its many foci now found extending throughout the country.

The opening of the nineteenth century found maturing the young men who were to lay the foundations of American surgery. In Philadelphia was Philip Syng Physick (1768–1837). Tall and erect in person and strikingly handsome in features, he soon became the leader of the profession and styled the Father of American Surgery. Not a man of great breadth or extensive reading, he was eminently practical in his methods. He was the originator of an operation for the cure of artificial anus, and devised a treatment for coxalgia, of which the methods of the present day are but adaptations. After a score of years of surgical teaching he died, leaving no published papers except a few medical journal articles.

At his death the mantle of leadership fell upon Valentine Mott (1785–1865), of New York, who during the remainder of his career stood *facile princeps* in American surgery. A thorough anatomist, a fearless operator and a brilliant teacher, he represented the best type of the American surgeon. His achievements make a long catalogue, dating from his ligature of the innominate in 1819, and including excision of the clavicle and of the maxilla, amputations at the hip and many other exploits. Fully six feet in height, with a fine face and deliberate and dignified manner, he was a man of great personal magnetism.

Contemporary with Mott and Physick, Benjamin Winslow Dudley (1785–1870), of Lexington, Ky., for many years dominated the surgery of the southwest. Distinguished as a lithotomist, his success in the removal of vesical calculi was unusual and his statistics remarkable. He was noted for his advocacy and extensive use of the roller bandage in fractures and external applications. He, too, made but few contributions to surgical literature, these being confined to medical journal articles.

The West was represented by Reuben Dimond Mussey (1780–1866), who, although of high repute as a surgeon and teacher in New England for twenty years, is prominently identified with Western surgery through the fact of his having passed the crowning years of his career in Cincinnati. His ligature of both common carotids after an interval of but twelve days, is classical. Although he did much valuable work, his failure to publish anything but a few brief reports of cases has rendered it of but little value to the profession. Of low stature and plain features, his success was due in no respect to an attractive presence, but to his skill alone.

John Collins Warren (1779–1851), of Boston, was the surgical autocrat of the northeast. Son of the founder and first professor of surgery in Harvard, and nephew of the famous general of Bunker Hill, he entered upon his career with all the *eclât* of the highest professional, personal and official relations. The first surgeon to operate upon a patient anæsthetized by ether, his work never failed to be characterized by ability and enterprise. He was the most scholarly of the five great contemporaries who ruled the surgery of this country during the first half of the present century, and in addition to many medical journal papers he was the author of a valuable work on tumors.

Surgery, led by these men, with the efficient support of many others, advanced steadily through the following decades. Gibson (1788–1868) added great strength to the University of Pennsylvania, while McClellan (1796–1847), a bold operator and fascinating teacher, worthily rivalled him, and with the support of Randolph, Mütter, Gilbert, Norris, H. H. Smith and Rhea Barton, rendered the city of brotherly love the surgical centre of the country. New York, under the leadership of Mott, supported by Kissam, Kearney Rodgers, Stevens and Bushe, pressed hard for the precedence. Smith, Hayward, Twitchell and Crosby made New England the source of much surgical knowledge. Warren Stone, John B. Davidge, Ephraim McDowell and Josiah C. Nott upheld the credit of the South; while Daniel Brainard, the younger Mussey, Horace Ackley and J. N. McDowell combined in perfecting the surgical work of the West.

Coming down nearer to our own day, we see in Philadelphia Samuel D. Gross (1805–1884) and Joseph Pancoast (1805–1882). Developing together, it is noteworthy that the greater portion of their lifetimes was passed in close association. Both surgeons of rare skill, teachers of great attractiveness, and authors of profound learning, they added greatly not only to the usefulness of

American surgery, but increased markedly the sum total of surgical knowledge. The death of his associate left Gross not only the greatest of Philadelphia's surgeons, but the chief authority in the surgical profession of America.

In New York, Willard Parker, James R. Wood and Frank Hastings Hamilton were long the leaders in surgery. Parker (1800–1884), while a successful and popular lecturer, was not an author. He excelled as an operator, working with either hand with equal facility. Among his contributions to surgery were operations for abscess of the vermiform appendix and for lacerated perineum. He was also the first to point out concussion of the nerves, as distinguished from concussion of the nerve centers. Wood (1816–1882) was a bold, rapid and anatomically sure operator and an attractive and earnest teacher. Practically the founder of Bellevue Hospital and its College, he was an enthusiastic pathologist, his collection still remaining as the nucleus of the Wood Pathological Museum. Hamilton (1813–1886), as a professor in Fairfield, Geneva, Buffalo, Brooklyn, and lastly in New York, met with exceptional success. His operative dexterity, combined with his talent for imparting knowledge and his facility of literary expression, combined to form a most remarkable character. His chief work was in the line of fractures, for the treatment of which he devised a number of useful appliances. Like Gross, he was a prolific writer, and left many valuable works as monuments of his skill and erudition.

In Moses Gunn (1822–1887), of Chicago, was afforded an example of the highest order of the practical surgeon. After seventeen years' surgical teaching at the University of Michigan he succeeded Brainard in Chicago, where he most worthily sustained the dignity of the profession. Ever enthusiastic in his prelections and brilliant in his operations, he made a deep impression upon the surgical practice of the country.

John T. Hodgen (1824–1882), of St. Louis, labored for forty years as a teacher and practitioner of surgery in that city, achieving not only a local but a national reputation for originality and ability. Author of no set surgical treatise, he enriched the current literature of the profession by numerous clinical reports and papers on fractures and other subjects.

Many other accomplished surgeons have added to the lustre of American surgery. Sands, Sabine, Little, Mason and Howe; Hodge, the younger Gross, Otis and Cowling; Byrd, Prince and many other names are essential to the complete history of American surgery. They will long be known by their works, and the omission of further reference to them must be attributed not to lack of appreciation of their splendid results, but to the iron rules of time and space. For even more obvious reasons the story of the still unclosed careers of living surgeons should be delayed until the quiet of the grave shall have softened criticism and tempered eulogy.

The list of surgical procedures originated by American surgeons is a long one, and to attempt more than an approximately complete one would be useless, so numerous are they, and affecting so many branches of the art. To repeat the mere names of the methods which have been improved would require a volume, while a recital of the mechanical appliances which surgery owes to American ingenuity would be a most laborious task.

Anæsthesia in operative surgery the world owes to America. In 1844 the anæsthetic qualities of nitrous oxide were discovered and utilized by Horace Wells, a Hartford dentist. He failed, however, to bring it before the profession, and it was not until in 1863 that Drs. Colton and Smith practically applied it in New Haven, Conn., from which time it entered upon a career of popularity, particularly as a dental anæsthetic.

The anæsthetic action of ether for a considerable time kept nitrous oxide in obscurity. Discovered only two years later, in 1846, by Dr. William T. G. Morton, of Boston—his attention having been attracted to the subject by his preceptor, Horace Wells—and brought before the profession with great *eclât* in John C. Warren's clinic at the Massachusetts General Hospital, it has remained the most extensively used of the anæsthetic agents in this country. It should be observed that the credit of the discovery of the anæsthetic properties of this agent has been ascribed by some authors to Dr. Wells himself, while the South has made a strong plea in favor of the claims of Dr. Long, of Georgia; but in any case the world owes to America this discovery, which has not only vastly reduced the sum total of human suffering, but has rendered possible more careful and painstaking work, and by greatly diminishing the shock to the system of the patient, has brought within reach recovery from operations, unattainable under the old régime.

The analgesic properties of cocaine were discovered in 1884 by Dr Karl Koller, now of New York, although at that time a student in Vienna, and publicly demonstrated by him at Heidelberg in that year. The method of prolonging the local anæsthetic effect of the drug by the application of pressure sufficient to retain it in the parts to be subjected to operation was discovered by Dr. J. Leonard Corning, of New York.

The use of bromine in the local treatment of hospital gangrene was discovered by Dr. Middleton Goldsmith, of Rutland, Vt., who was then a surgeon of volunteers in the war of the rebellion, which gave him facilities for treating many cases of this kind in military hospitals in the South.

Many improvements in antiseptic and aseptic surgery have emanated from American hospitals,

Among these may be mentioned the introduction to the profession of hydronaphthol as an antiseptic agent by Dr. George R. Fowler, of Brooklyn, N. Y., who in 1885 published an exhaustive paper presenting a large number of cases demonstrating its value.

The use of the elastic bandage in the treatment of varicose veins and ulcers was demonstrated by Dr. Henry A. Martin, of Boston, who in 1877 brought his discovery before the American Medical Association.

The diminution of violent inflammation in the extremities by cutting down the blood supply of the part was first practiced by Dr. Henry M. Onderdonk, of New York, who in 1813 ligatured the femoral artery to relieve excessive inflammation consecutive to a wound of the knee-joint. In 1866 the procedure was discovered independently by Dr. Henry M. Campbell, of Atlanta, Ga.

The practice of rendering limbs bloodless before subjecting them to operation is of American origin, and was first employed in Philadelphia by Drs. Joseph Pancoast and S. D. Gross.

The implantation of skin for the cure of chronic ulcers was first performed by Dr. Frank H. Hamilton in Buffalo, in 1854, under the name of anaplasty. This operation was the precursor of the skin grafting of Reverdin, although there seems to be no doubt but that the latter method was conceived without any knowledge of the former.

Animal ligatures were originated by Dr. Philip Syng Physick, of Philadelphia. In 1844, at his suggestion, Dr. J. S. Dorsey successfully ligatured a large artery in a horse with a ligature of buckskin, the material having been cut into strips, which were rolled upon a marble slab to render them round and solid. He afterwards employed the method in a number of operations, some of them capital, cutting the ends of the ligature close and leaving it there to be absorbed in a closed wound. Dr. Joseph Hartshorne, of Philadelphia, soon after secured the vessels, in an amputation of the thigh, with strips of parchment, and obtained a good result.

S. D. Gross is the authority for the statement that the innocuous character of the metallic ligature was first satisfactorily demonstrated by Dr. Henry S. Levert, of Mobile, Ala.; while Dr. Warren Stone, of New Orleans, was the first to apply a wire ligature, relieving an aneurism of the external iliac by tying the common trunk of that vessel with wire.

The cure of aneurism by digital compression is undoubtedly an American procedure. Agnew states that Dr. Jonathan Knight, of New Haven, Conn., was the first to apply this method successfully, curing a popliteal aneurism by its employment. Priority is ascribed, however, by others to Warren Stone, of New Orleans. It is worthy of note also that Dr. Knight was twice elected President of the American Medical Association, being the only member who has ever been so complimented.

Valentine Mott, of New York, in 1818, and while but 34 years of age, was "the first to execute the bold, brilliant and difficult feat of taking up the innominate artery for aneurism of the subclavian," and this operation placed him at once in the front rank of the surgical world.

Dr. A. W. Smyth, of New Orleans, simultaneously ligatured the innominate and common carotid arteries for traumatic subclavian aneurism, and averted death from secondary hæmorrhage by ligature of the vertebral artery on the fifty-fourth day. The patient survived ten years.

Dr. Amos Twitchell, of Keene, N. H., successfully ligatured the common carotid artery in a case of secondary hæmorrhage, performing this operation in 1807, eight months earlier than Sir Astley Cooper, to whom has been ascribed the precedence in this operation.

Dr. Macgill, of Maryland, in 1823, was the first to perform ligature of both common carotids in the same patient, a month intervening between the two deligations. In 1857 Robert, of Paris, ligatured the left carotid, thirty-eight years after the right had, in 1819, been secured by Dupuytren in the same patient, but the double operation could not properly be said to have anticipated that of Macgill. Moreover, the facts that death was consequent upon the application of the second ligature, and that during the long interval the collateral circulation might have had ample time to adapt itself to the new conditions before the left was tied, take the operation out of the same category as that of Macgill in any event.

Dr. L. C. Lane, of San Francisco, in 1887, for the first time successfully simultaneously ligatured both common carotid arteries in the same patient, both being secured during the same operation with an interval of but an hour and a half between the application of the two ligatures.

Dr. Wright Post, of New York, was, in 1817, the first to successfully ligature the subclavian artery. The operation was performed for the relief of aneurism, in which it was successful.

Dr. J. Kearney Rodgers, of New York, in 1846, first successfully ligatured the subclavian artery between the scaleni, operating on the left side for aneurism.

Dr. William Gibson, of Baltimore, afterwards of Philadelphia, in 1812, first ligatured the common iliac artery for gunshot wound, the patient dying from secondary hæmorrhage thirteen days later. Valentine Mott, of New York, in 1827, first performed the operation for aneurism, the lesion affecting the external iliac.

Dr. J. M. Carnochan, of New York, was the first to render practicable section of nerves for facial neuralgia. His operation consisted of division of the superior maxillary nerve posterior

to Meckel's ganglion, in front of the foramen rotundum.

The operation of straphylorrhaphy, although first practiced in 1819 by Roux, was originated independently in 1820 by Dr. John C. Warren, of Boston, whose procedure, moreover, was preferable to that of Roux.

Dr. J. Mason Warren, of Boston, in 1843, followed in the footsteps of his father by devising the operation of uranoplasty.

Dr. Joseph O'Dwyer, of New York, in 1886, was the first to devise a practicable method of tubage of the larynx, whereby in many cases of tracheal obstruction, tracheotomy was rendered unnecessary.

Dr. Maurice H. Richardson, of Boston, in 1886 demonstrated the accessibility of all parts of the œsophagus to digital inspection, either by gastrotomy or œsophagotomy.

Dr. Nathan Smith, of New Haven, was the first to trephine for the relief of inflammatory affections of bone.

Dr. Horatio G. Jameson, of Baltimore, for the first time removed the superior maxilla in 1820, leaving only the roof of the antrum; and Dr. David L. Rogers, of New York, in 1824 first removed both upper maxillæ.

Dr. Deaderick, of Tennessee, in 1810 for the first time made a partial resection of the lower jaw.

Excision of the coccyx was first performed in 1832, for coccygodynia, by Dr. Josiah C. Nott, of Mobile, Alabama.

The treatment of ununited fractures by wiring the fragment was first successfully practiced by Dr. J. Kearney Rodgers, of New York.

Dr. Lewis D. Mason, of Brooklyn, N. Y., in 1881, was the author of the simplest and best method of treating depressed fractures of the nasal bones by passing an ordinary straight surgical needle through the line of fracture from one side of the nose to the other, after the fragments have been properly elevated.

Dr. Gurdon C. Buck, of New York, introduced to the profession the treatment of fracture of the thigh by continuous extension by weight and pulley, without other encumbering apparatus.

Dr. John Rhea Barton, of Philadelphia, was the first surgeon to treat fracture of the patella by wiring the fragments, using silver wire. This operation was performed in 1834, but the patient died. Dr. George McClellan, of Philadelphia, in 1838, however, was the first to perform this operation successfully, using a soft iron wire. The patient recovered and a bony union resulted.

Dr. Oscar H. Allis, of Philadelphia, was the first to appreciate the pathological conditions found in fractures of the lower end of the humerus, and to apply the treatment proper for the prevention of deformity.

Dr. Lewis S. Pilcher, of Brooklyn, N. Y., in 1878, was the first to demonstrate the correct pathology of fractures of the lower end of the radius, and to apply the treatment logically indicated by the pathology.

Methods of treating fractures of the clavicle have been devised by Dr. Lewis A. Sayre, of New York, Dr. E. M. Moore, of Rochester, Dr. George Fox, of Philadelphia, and others; while individual modifications and methods of treatment of various fractures have been devised by American surgeons without number. Splints and dressings have been devised by Ahl, Agnew, Coover, Levis, N. R. Smith, Hamilton, Hodge, Physick, Packard, Shrady, Burge, Bauer, Hodgen, Brainard, and many others.

Dr. Lewis A. Sayre, of New York, introduced to the profession the plaster-of-paris jacket in the treatment of Pott's disease of the spine, the most important dressing in this form of spinal trouble, and for his discovery of it, according to Agnew, "humanity owes him a debt of everlasting gratitude."

The reduction of dislocations by manipulation instead of by main force, although previously practiced empirically to some extent, was first made practicable through the experiments and deductions of Dr. Wm. W. Reid, of Rochester, N. Y., in 1855.

Dr. Dixi Crosby, of Hanover, N. H., discovered the method of reducing dislocations of the thumb and fingers by forced extension and pressure upon the base of the dislocated bone.

The function of the Y ligament of the hip-joint in dislocations of the head of the femur was discovered and demonstrated, by Dr. Henry J. Bigelow, of Boston.

In no branch of surgery has the American surgeon shown to greater advantage than that of the abdomen. Free from the restraints of tradition and guided by experience and observation, he has struck boldly into this field of surgery. As has already been remarked, so long ago as 1714 Dr. Baird, of New York, for the third time in history performed laparotomy for extrauterine gestation. This was the first recorded case of abdominal surgery in this country.

It was reserved, however, for an obscure country doctor in Kentucky, nearly a hundred years later, to rescue abdominal surgery from the realms of uncertainty and place it upon the pedestal of general recognition. Dr. Ephraim McDowell was born in Virginia, but after studying medicine in Edinburgh entered upon the practice of his profession in Danville, Ky. In 1809 he performed his first operation of an ovarian tumor, repeating it in 1813 and again in 1816, but not publishing his cases until 1817. His operation was greeted with opposition and himself with censure, but he did not falter until all opposition was overcome, and ovariotomy became one of the recognized operations of surgery.

The first recorded case of abdominal section for gunshot wound of the intestine was that of Dr. R. A. Kinloch, of Charleston, S. C., who performed the operation, with a fatal result, however, in 1881. The operation has since been done by a large number of American surgeons with entire success.

Dr. Nicholas Senn, of Milwaukee, Wis., in 1887 presented the result of a vast amount of experimental research into the surgery of the intestines, in which many improvements in technique were included. And in the following year he made known a method of rendering positive the diagnosis of intestinal perforation without exploratory laparotomy. Having demonstrated the permeability of the ileo-cæcal valve by gas, his device of the rectal insufflation of hydrogen and its detection at the wound by a flame was a natural deduction.

Dr. Robert Battey, of Rome, Ga., in 1872 was the first to practice oöphorectomy, or extirpation of the ovaries, for the purpose of prematurely inducing the menopause in cases in which menstruation was productive of bad results, and from its originator the operation has been called "Battey's operation."

Dr. R. A. Kinloch, of Charleston, S. C., in 1863 performed enterectomy for artificial anus according to a method advised by the elder Gross in 1847, excising a portion of the bowel and suturing the divided ends.

The possibilities and limitations of the surgery of the pancreas were for the first time demonstrated in 1886 by Dr. Nicholas Senn, of Milwaukee, Wis.

Dr. E. B. Wolcott, of Milwaukee, Wis., performed extirpation of the kidney in 1860. The patient survived the operation fifteen days, death then being caused by exhaustion from profuse suppuration.

Dr. Albert G. Walters, of Pittsburg, Pa., in 1862, was the first to perform laparotomy for rupture of the bladder; this case was also the first successful case.

Dr. Greensville Dowell, of Texas, devised an operation for the radical cure of hernia remarkable for its simplicity of detail and its satisfactory results. It consisted of circumclusion of the boundaries of the inguinal canal with a ligature, using a double-pointed curved needle devised for the purpose.

Dr. Charles McBurney, of New York, is the author of the operation for the radical cure of hernia which is regarded with the greatest favor by the majority of surgeons in this country and by many abroad. Opening up the entire inguinal canal up to the external ring under the most careful antisepsis, he loosens up and ligatures the sac as high up on its neck as possible; he then closes the upper and lower angles of the wound in the integument and packs the entire canal with gauze and iodoform, leaving it to heal by granulation.

Exstrophy of the bladder was first remedied by a plastic operation in 1858, by Dr. Joseph Pancoast, of Philadelphia.

Dr. Willard Parker, of New York, in 1846, gave to the profession the operation of cystotomy for the relief of chronic cystitis. This procedure was first applied to chronic cystitis in the female by Dr. Nathan Bozeman, of New York, in 1861.

The operative treatment of stone in the bladder was revolutionized in 1878 by Dr. Henry J. Bigelow, of Boston, who discovered the tolerance of the bladder to prolonged manipulations, and upon it founded the operation of rapid lithotrity with immediate evacuation of the crushed stones by washing the bladder, giving to the process the name of litholapaxy.

Dr. Philip Syng Physick, of Philadelphia, was the first to place internal urethrotomy upon a scientific basis by designing, in 1795, a catheter bearing a concealed lancet which could be projected at will. It was a crude instrument as compared with the later productions of Otis and Gouley, both also American surgeons.

Dr. Joseph W. Howe, of New York, in 1881, devised a most ingenious substitute for the penis after amputation of that organ, in the construction by a plastic operation of labia minora or nymphæ from the redundant tissues of the scrotum.

The increased frequency of extensive injuries due to the close network of railroads with which the country is covered, has rendered more frequent the necessity for multiple amputations. Simultaneous triple amputations have been successfully performed by Drs. John Ashhurst, Jr., of Philadelphia; James B. Luckie, of Birmingham, Ala.; Warren Stone, of New Orleans; Reid Alexander, of Kansas; Koebler, of Schuylkill Haven, and others; while Dr. G. C. Wallace, of Rock Rapids, Ia., has reported a successful case of simultaneous quadruple amputation.

Dr. J. Marion Sims, then of Montgomery, Ala., and later of New York, in 1852, was the first to devise a practicable operation for the relief of vesico-vaginal fistula, facilitating the operative procedure by the use of the speculum known by his name, using silver wire to retain the freshened edges in contact until union could occur, and providing drainage of the bladder sufficient to protect the wound from contact with the urine. As an accessory to this operation arose the method of exposing the intra-vaginal parts by retraction of the perineum and posterior vaginal wall by the duck-bill speculum, with the body of the patient so placed as to secure distension of the vagina by air. And this, greatly extending the accessibility of the female genito-urinary organs to operation, really gave birth to a new branch of surgery—gynecology.

The removal of fibrous tumors of the uterus was, before the operations of Dr. W. L. Atlee, of

Philadelphia, considered in most cases to be an impossible and fatal procedure. By many successful enucleations, and by his essay on the subject to which was awarded the prize of the American Medical Association in 1853, he brought these cases within the field of modern surgery.

The attention of the profession was in 1874 first attracted to the pathology and operative indications of lacerated cervix by Dr. Thomas Addis Emmet, of New York, who introduced the plastic procedure for its cure, now known by his name.

Dr. T. Gaillard Thomas, of New York, in 1870, devised and first performed the operation of vaginal ovariotomy, removing successfully an ovarian cyst the size of a large orange through an opening in the vagina and sac of Douglas.

While the United States produces a greater number of general medical journals than any other country, periodicals devoted exclusively to surgery have been but few in number. American surgeons, however, have freely given their services to general medical journalism. As early as 1824 George McClellan edited the *Medical Review and Analectic Journal* in Philadelphia, and George Bush was the founder of the *New York Medico-Chirurgical Bulletin* in 1831. George A. Otis edited the *Virginia Medical and Surgical Journal* before entering upon the preparation of the *Medical and Surgical History of the War of the Rebellion*. F. H. Hamilton, both of the Grosses, Cowling and many others have occupied the editorial tripod.

It was not until 1876 that the *Archives of Clinical Surgery*, the first American surgical periodical, appeared in New York under the direction of Dr. Edward J. Bermingham. In the following year, however, it extended its field to the entire domain of medicine becoming the *Hospital Gazette*. Another ephemeral surgical journal was the *International Surgical Record*, started in New York as a weekly by Dr. Achilles Rose, in 1880. This too expired soon after its birth from lack of support. The first permanent move towards the establishment of a surgical journal was made in 1881, when Dr. L. S. Pilcher, G. R. Fowler and the writer transformed the proceedings of a local society in Brooklyn, N. Y., into the *Annals of Anatomy and Surgery*, devoting its pages exclusively to surgery and the anatomical applications of surgery. Published monthly with success during the ensuing three years, it was then suspended for a year. From it then sprung, in 1885, the *Annals of Surgery* under the editorship of L. S. Pilcher, who still remains at its head. In 1888, surgical journalism was further reinforced by the *International Journal of Surgery and Antiseptics*, published quarterly in New York and edited by Dr. M. J. Roberts.

American contributions to surgical literature, however, have been abundant and of excellent character. The first systematic work on surgery was the *Elements of Surgery* of John Syng Dorsey, published in Philadelphia in 1813, and passing through three editions. Works on surgery by both Gibson and McClellan, were published respectively in 1827 and 1848, that of the latter being issued posthumously by his son. Philadelphia has provided us with three more systematic treatises on surgery, those by Ashhurst, Gross and Agnew, the two latter being encyclopædic works, unequalled at the time of their publication in any country. The *International Encyclopædia of Surgery*, edited by Ashhurst but published in New York, in spite of its title is an American work of great value and the largest work on surgery ever published in the English language. New York has also given us the treatise on surgery, which F. H. Hamilton considered the crowning glory of his career, and more recently a textbook on surgery by Wyeth, remarkable for its conciseness and adaptation; while the lectures of Van Buren, published posthumously, form a most valuable collection.

The war of the Rebellion created a demand for works on military surgery which was early supplied by the handbook of Tripler and Blackman, the treatise of Hamilton and the manuals of Gross and Chisholm. But the masterpiece of American military surgery is the surgical division of the *Medical and Surgical History of the War of the Rebellion*, of which the first two volumes and much of the third were planned and executed by Otis, the work being completed by Huntingdon. This splendid work, the most magnificent creation of its kind the world has ever seen, will stand a perpetual witness to the high character of American military surgery.

Operative surgery is well represented by the works of Stephen Smith, Bryant and Packard, while Jarmany's operative surgery on the cadaver is a most valuable textbook.

General surgery includes Lyman on anæsthesia, Ranney on surgical diagnosis, L. S. Pilcher on the treatment of wounds, Gerster on aseptic and antiseptic surgery, and Wales on mechanical therapeutics.

Abdominal surgery is treated in general by Mears and Wyman, the surgery of the intestines by Gross and Senn, and hernia in the works of Warren. Affections of the rectum have been ably considered by Andrews, Bush, Bodenhamer and Kelsey.

In no branch has the American surgeon been more successful than in the bones and joints. The works of Bigelow, Sayre and Shaffer on orthopædic surgery are classical. The subject is further considered in Markoe's work on diseases of the bone, Nott on bone and nerve surgery, Ashhurst on injuries of the spine, Poore on osteotomy and osteoclasis, and Hodges on excision of the joints. The hip-joint is thoroughly consid-

ered in special works by Bigelow, Carnochan and Gibney. The elder Gross produced a work on bones and joints in 1830, while three decades later Hamilton issued his classical work, covering the same field under the title of "Fractures and Dislocations." This work, which has been translated into French and German and has passed through seven editions in English, is still the chief authority on the subject of which it treats. More recently an exhaustive work on the same subject by Stimson has met with great favor.

The territory of genito-urinary surgery has been covered by Van Buren and Keyes, Gouley, Bellfield and the younger Gross; while Durkee and Bumstead are authorities on venereal diseases.

Glancing for a moment at the special branches, it will be observed that the surgery of the female genito-urinary organs has nowhere been more thoroughly studied than in the United States; the works of Skene, Emmet, Byford and Thomas are evidences of American superiority in this specialty. In other branches equal evidences of industry may be seen.

These references to American contributions to surgical literature have been designed to be suggestive rather than comprehensive, to show their existence and scope rather than their amount. In addition to the works noted, a vast number of independent monographs and medical journal papers still further bear witness to the activity of American surgical practice. The production of surgical literature is encouraged also by the surgical societies formed in the larger cities and by the American Surgical Association, which meets annually for the discussion of surgical subjects and publishes a yearly volume of transactions, the high character of which has been an important factor in building up the surgical reputation of the country.

From this brief review of the character and work of the American surgeon then, it becomes evident that his brilliancy and force as a teacher, his originality and skill as an operator, and his grace and impressiveness as an author, have united to secure the high position accorded to him by other nations. Scarcely a century has elapsed since the advent into practical work of the first American surgeon, Philip Syng Physick, the Father of American Surgery. In this comparatively brief period his successors have not only brought their profession to an equality with that of older countries, but have in great measure been able to repay the instruction received from them by the addition to surgical knowledge of new facts, new processes, and new ideas.

THE medical students of Bologna have opened a subscription for the erection of a bust of the late Professor Loreta in the clinical theatre of the University.

TREATMENT OF PERITONITIS.

Read in the Section of Surgery and Anatomy, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY J. M. BALDY, M.D.,
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According to Alonzo Clark, "it is to Bichat belongs the merit of having proved that inflammation of the peritoneum is a disease distinct, and that it ought to be separated from enteritis, gastritis, etc." It is in this conception of the disease that the treatment as taught the profession by Clark has had its origin, and has maintained its hold for so long a time. It was only possible for it to do so, even theoretically, by some such conception; a conception which is based on anything but fact, as has been abundantly proven during our recent tremendous strides in knowledge of abdominal diseases. In fact, it is becoming daily more and more apparent that the vast majority of attacks of peritonitis assume virtually the character of a symptom; the disease being some well recognized lesion of the abdominal or pelvic viscera.

Habershon has studied the record of 500 autopsies of peritonitis made at Guy's Hospital during twenty-five years, amongst which definite lesions were found to be at the bottom of 400 or more, but he "cannot find a single case thoroughly detailed where the disease could be correctly regarded as existing solely in the peritoneal serous membrane." In attempting to draw different conclusions from this list, Alonzo Clark says "this statement must be received with some caution. In twenty-five years the records were probably made by a number of different persons, and persons of varying views and varying capacity and judgment. It embraces the cases when inflammation of the serous membrane occurs in the course of albuminuria, pyæmia, puerperal fever, erysipelas, etc." It also includes "peritonitis caused by general nutritive changes in the system, as seen in struma, cancer, etc.," "comprising also those cases in which the circulation of the peritoneum has been so altered by continued hyperæmia (modifying its state of growth) that very slight existing causes suffice to excite mischief, as in peritonitis with cirrhosis, disease of the heart, etc. With these explanations the statement differs widely from what it would seem to mean without them. It is far from saying that peritonitis always follows some abdominal lesion and is caused by that lesion." This reasoning of Clark's is as faulty as he apparently makes that of Habershon. For instance, take the puerperal fever cases. Nothing being said to the contrary, it is fair to assume that the origin of the peritonitis was in the uterus, and for all practical purposes would then be in the abdominal cavity. And so it is with the cases of pyæmia. Granting they were not also of puerperal origin, yet no one could say that a peritonitis following an attack of

pyæmia was in any sense of the word, idiopathic. This same disposition could also be made of most of the other objections advanced by Clark, excepting probably in some of the strumous cases, those arising from simple cirrhotic disease, and from heart disease. However, here comes another objection which cannot by any possibility be overlooked. These examinations were made by "a number of different persons, and persons of varying views and varying capacity and judgment." The examiners have undoubtedly in many cases overlooked the true cause, and have falsely attributed it to something else, for the very common reason (as we all know from experience) that they did not know to what else to fasten the blame. To just that extent these negative results of post-mortem examinations are open to suspicion. What was known, for example, of pelvic inflammatory diseases twenty-five years ago? And were they not all systematically overlooked? To-day this is recognized as one of the most frequent causes of peritonitis. Not only is the chronic disease in the pelvis secondarily responsible for many attacks, but the causes of the pelvic disease itself (for instance gonorrhœa), often primarily are the origin. No safe deductions can be drawn from these post-mortem studies made a quarter of a century ago, undoubtedly by some who were not capable of making a thorough and searching examination, and in days when diseases which are now very common, were not recognized or noted at all. That peritonitis is a disease distinct and is idiopathic in its origin is boldly disputed *in toto* by many, their opinion being based on not only clinical and post-mortem evidence, but on data obtained by an opening into the peritoneal cavity during life and during the progress of the attack itself. That peritonitis is absolutely never idiopathic in its origin I am not, as many others are, fully prepared to say. But of this, at least, we are sure; that in the vast majority of cases, there is a distinct lesion as the exciting cause, and personally, in quite a large experience with this disease, I have never seen a case in which a definite cause was not (probably) present. If we accept this view of the etiology of peritonitis, as I think we needs must, it is perfectly clear that, even from a theoretical point of view, we must find some other treatment than that by narcotics. Practical experience has long since taught that this must eventually be so. The only ground on which opium could possibly hold its place in the treatment of this disease, is on the theory that the peritonitis was idiopathic. As I cannot accept this view, or at least only as of extremely limited and doubtful application, I am forced into looking for more certain and more exact methods of treatment. Of course, as in many diseases, it is at times only necessary to relieve the symptoms, in order to at least temporarily cure the patient. It becomes comparatively or absolutely necessary, at other times, to cure the disease which is manifesting itself by this most dangerous symptom. Under these two headings then, I shall consider the treatment, ignoring the fact that peritonitis may be a distinct disease; for the double reason that it is extremely doubtful whether it ever is so, and even if it is, it matters little, as it would not in the slightest degree alter the line of management.

It must appeal to the reason of any one that in any given case of peritonitis the two great and dominant principles involved in the treatment, aside from the actual ablation of the original cause, must be to get rid of the irritating products of inflammation and thus prevent an increase in an already highly inflammatory trouble, and to get rid of the excess of blood determined to the inflamed part. In other words, we must ever bear in mind the absolute necessity of drainage and depletion; principles which are universally accepted when applied to inflammations of any other part of the body, and which have only been lost sight of in dealing with the peritoneum. It is simply the old idea, in another form, of fear of the peritoneum, with which the profession was so long imbued, and the idea that principles as applied to other parts, could not with equal safety be applied to this sacred membrane. We have, however, so thoroughly demonstrated the folly of this supposition, that it is now notorious that this portion of the human anatomy can be treated with as much impunity as any other, provided it be done on the same common sense principles. Other than by surgical means, our greatest and best channel for drainage and depletion is through the intestinal canal, by the aid of purgative medicines. Bearing in mind the principles on which this treatment rests, a purgative which produces large watery passages is to be selected, and of these, for routine treatment, the magnesium salts are possibly the best. Again, still bearing in mind the object of the treatment, these salts must be given in large and concentrated doses. In ordinary cases of local peritonitis it is customary to administer to the patient a teaspoonful of sulphate of magnesium or Rochelle salts, dissolved in as little water as possible, every hour, until the desired effect is produced; this effect being a large number of watery stools, even as many as fifteen or twenty if necessary. However, ordinarily eight or ten will have accomplished the object. If we have to deal with a general peritonitis it becomes necessary to greatly increase the dose, and I have administered an ounce of the drug at a time, for three or four doses, at longer intervals, and aided the action of the medicine by repeated and large enemas containing turpentine. There are times when the stomach will reject the salines, and then it is necessary to begin with very small doses—a quarter to half a spoonful given at short intervals and gradually increased as it becomes possible.

Where the drug cannot be retained at all, it is well to try some other; for instance, calomel. All of the text-books object most emphatically to the use of purgatives, and as Flint says: "clinical observation certainly furnishes no evidence of the usefulness of cathartics in the treatment of acute peritonitis." And so it has been with all others, since the days when Alonzo Clark first introduced his opium treatment. That cathartics produced no clinical evidence in the old days in their favor was simply because they were only used to the point of obtaining a passage of the bowels, and not to that of thorough depletion.

I have repeatedly found that on my second visit a patient was no better, and that only a few doses of the medicine had been taken, merely sufficient to secure one or two passages. Proper instructions being given, the next day has almost invariably seen the patient well advanced in convalescence. The extreme simplicity of this rational method of treatment finds its complete justification in its results. When it is going to control the peritonitis it does so at once and the physician is not left in doubtful ignorance of the final termination, but is early put in possession of information necessary in order that he may take further and more decisive steps, where it is deemed advisable.

The avocates of opium, by their different claims, show on how uncertain a basis this treatment rests. Clark has always insisted that to obtain any good whatever, the patient must be narcotized, it matters not how much opium is necessary, and to show how great must be the doses to accomplish this at times, he reports one case in which over two thousand grains of the drug were given within ten days. On the other hand, Musser, Meigs and others talk of a quarter of a grain of opium and a twelfth of a grain of extract of belladonna every two hours. In Clark's case the patient grew rapidly worse up to the fifth day, and then for a number of days there was no change of symptoms until the fourteenth when she "slept for the first time heavily, all other symptoms improving, bowels moved freely, ate well, tympanites subsiding." And yet it is thought that a quarter of a grain every two hours will accomplish the same result! I have myself given, in times past, from sixty to seventy grains of opium daily, for a number of days, without producing sleep or relieving pain or tympanites. With salines, however, as soon as the bowels have been gotten to move freely, the pain and tympanites are both relieved and the patient soon falls into a refreshing slumber. Opium meets but one indication in these troubles that the salines do not, and that is to assist in "keeping the bowels in splints" and so put the parts at rest. As far as this indication is concerned no drug is necessary, as the peritonitis itself accomplishes the object most effectually, as any one will shortly discover when he attempts to secure purgation. The amount of harm done by the rubbing together of the inflamed serious membrane is so insignificant in comparison with the good accomplished by the depletion that it is not worthy of serious consideration. The depletion of the blood-vessels soon disperses the inflammation itself; it causes the inflammatory excretions already thrown out to be absorbed and discharged and by the very motion it gives to the bowels prevents their adhesion. Opium has exactly the opposite effect. If in former times purgatives gave no clinical evidence of their value, certain it is that to-day the testimony in their favor is becoming overwhelming. If physicians will but give the treatment one or two fair trials, with the above principles and rules well in mind, it is safe to prophesy that ninety-nine out of every hundred will shortly become converts. It must not be understood that salines can be safely and indiscriminately used in every case of peritonitis. Such an understanding could only end in disaster and is to be carefully avoided. Nor is it well to imagine that in every case in which it is safe to use these drugs, they will cure the patient. There are some attacks of peritonitis in which neither purgatives nor any other drug will stop the progress of the inflammation, or save the life of the patient; and here it is that the surgeon must step in and interfere.

One of the beauties of the purgative treatment is that the surgeon has a chance of knowing when his time has arrived; which is something he never knows when opium has been used. A successful treatment of all cases, must depend essentially upon the recognition of the many antecedent pathological conditions that may be considered as casual, many of which must eventually or immediately be treated surgically. This being true, peritonitis is essentially a surgical disease (if it can be called a disease at all), and the surgeon should always, at least be early associated with the case and not called in simply to share the responsibility of the death.

The first record I can find of the abdomen being deliberately opened during and on account of an attack of peritonitis is the case of Dr. Wiltshire, in May, 1868. The patient, suffering from an ovarian tumor was seized with a violent attack of peritonitis. The abdomen was opened, the cyst found rotated and gangrenous and was removed. The patient recovered. For half a dozen years subsequently the experiment was not repeated, as far as known, and only after that to a very limited degree. The last half dozen years or so have increased our knowledge of the value of this operation as a life saving procedure, and now it is rapidly becoming a familiar performance.

The opening of the abdominal cavity and the dealing with the lesions found, together with the judicious use of purgatives, has put into the

hands of the profession a series of remedial agents, to which the vast majority of cases of peritonitis should succumb.

Many attacks arising from pelvic inflammatory disease, and recurring from time to time, can, as a rule, be controlled and cured quickly by the free use of salines. But it must be remembered that the diseased organs which caused the inflammation are still present and under the same circumstances will again and again set up other attacks, each one making the local trouble worse than before and rendering it more difficult of removal. This goes on until finally the adhesions are so extensive and dense, that perchance a loop or two of intestine becomes strangulated and the woman loses her life, either directly from one of the attacks of peritonitis which has become general or from a strangulated obstructed gut. Such cases are in no sense of the word imaginary. I could detail many; a recent example was a very prominent woman in social and charitable circles in Philadelphia.

This is one of the strongest reasons that can be advanced for the early removal of these pelvic troubles. If the disease is plainly present, and there are recurring attacks of peritonitis, the surest and quickest cure for all the trouble is to remove the disease. And so it is with appendicitis. We have all of us seen cases in which an inflammatory attack has occurred in the right iliac region, and which we have cured medicinally, only, however, in many cases, to see return again and again. Sometimes these all end in recovery, and no particular harm has been done. But how many of them eventually end in a fatal attack? And who is to say just when pus has been formed and when it has not? I have known one of the most thorough diagnosticians in Philadelphia, one who has seen hundreds of these cases, give the opinion that there was no pus, no great danger, and that the patient would get well without much trouble; he had seen plenty such; and yet at an operation the next day, three or four ounces of pus were found and the patient died that same night. We have all probably seen many similar cases. Where a patient has recurring attacks of peritonitis in the region of the cæcum, the only safe method of cure is to cut down and remove the diseased appendix, which will most always be found. That diseased and adherent appendix, pus or no pus, stands as a constant menace to the life of the patient, and should not be allowed to remain one minute longer than would be a Fallopian tube in the same condition, as almost surely an attack of peritonitis will eventually end the life of the individual.

Where there is pus in or near the peritoneal cavity and causing inflammatory trouble, it is simply folly to even attempt any other treatment than surgical. The moment there is good reason to suppose that pus is at the bottom of the attack or has subsequently complicated it, we have an absolute and imperative indication to operate, it matters little whether this arises from a pus tube, an abscess of the liver, an appendicitis, a suppurating ectopic gestation, or abscess from any other source.

It seems hardly necessary even to suggest that an operation was strongly indicated where a perforation of the intestine had taken place. And yet even within the past few months I know of several cases, with gunshot wounds, allowed to die from subsequent peritonitis, without an effort to save them. When extravasation of the contents of any of the hollow viscera has taken place, it matters little if it is fæces, urine, or bile, a violent peritonitis is the rule, and we can only be safe by acting on the supposition that it is inevitable.

With perforation in typhoid ulcers our ground is not so sure. The results have so far been anything but encouraging, and yet it is entirely too premature to come to any such conclusion as arrived at by Mears, in his paper on this subject in 1888. It must be remembered that laparotomy is almost absolutely the only chance for the patient under these circumstances, and a much more general trial should be made of the virtues of this treatment before condemning it. Perforating ulcers of the cæcum must necessarily be treated by surgical means. Only last year Dr. McMurtry, of Kentucky, demonstrated the soundness of this procedure in such a case occurring in a young physician, whom he saved by an early and timely operation.

It is not always easy to say whether or no, in perforating wounds of the parietes, the viscera are injured; not even is Senn's injection of gas sure to tell the tale correctly. But where such a wound has taken place and a peritoneal inflammation has followed, there is no room for hesitation or for medical treatment. In these cases we should always turn to the surgeon and to surgical methods.

All cases arising from traumatism, such as blows, falls, etc., should properly come under surgical management, for the reason that one can never be sure that some of the viscera are not ruptured or otherwise badly injured. It is true that without this direct injury to the internal organs the peritoneal inflammation may be excited, but the supposition is or always should be, where the symptoms are of such a character as to make it probable, that a rupture or laceration has taken place, and the patient should by an operation be given the benefit of the doubt.

With a given ovarian tumor, or a tumor from any other source, an attack of peritonitis is most decidedly a positive indication for laparotomy. It is perfectly true that such cases have time and again recovered, and subsequently gone through

a second or even a third attack safely, but that argues nothing in favor of waiting or allowing the disease to remain. Each and every inflammatory attack means more extended and dense adhesions, and each one means immediate imminent risk to the patient's life.

In cases of intestinal obstruction it is generally extremely hard to tell when peritonitis has developed; but, fortunately, the disease here is of such a character as to demand early surgical interference, peritonitis or no peritonitis, and no one need hesitate to operate on a case of intestinal obstruction at any time if he can be reasonably sure it be not one of fecal impaction. He will, by so acting, save twenty out of twenty-five cases, where otherwise he would probably lose twenty out of twenty-five.

Cases of chronic peritonitis are best treated by the surgeon. As a rule some well defined disease is at the bottom of the inflammation, and it can best be cured by the removal of the cause. If no cause be found, then, as in the acute form, irrigation and drainage follow as a matter of course. The tubercular form of the disease is no exception to this rule, and daily experience is showing that many of these cases live on for years in comfort after an operative procedure.

We are all of us frequently called to see patients suffering from peritonitis, and after an incomplete examination, which the individual's condition renders necessary, are unable to find any disease to which the attack may be attributed. In such a case as this one would, a few years ago, naturally have hesitated to propose surgical interference; and so it is to-day. An effort should be made to relieve the trouble by medical means, and this will probably in many cases prove successful; but if medical means are going to do any good, they should do so very quickly. The records contain cases of recovery where the treatment has been kept up for a week or weeks, and the result has been in extreme doubt the whole time. But for one such case of recovery there are many deaths. Such a prolonged uncertainty could only have existed in the old days of opium. With our present treatment by purgatives twenty-four, or at most forty-eight, hours must in the majority of cases tell the tale. By this time the patient is or is not convalescent, this depending to a great extent on whether purgation has been produced or not. If purgation is produced and the individual is not beginning convalescence, then is the time for the bold use of the knife. Every moment after this is lost time, and the attendant can only excuse himself for neglect to turn to surgical means on the ground that he is afraid of surgical procedures.

The results of peritonitis are too terrible and its mortality too great for any false sentiment to stand in the way of an operation. Where we can control the situation we have no right to temporize on account of our own feelings or to humor the fanciful and ever varying whims of the patient and her friends. This always reluctant consent of friends is too often used as an excuse for our own hesitancy and lack of decision. In this, as in all other abdominal troubles, the ideal physician should have no feelings; or, if he has them, should keep them down with a strong and relentless hand. The patient should be a mere machine to him. That machine is out of order, and the only question should be, how may it be best and most surely repaired? In the great majority of cases some well defined disease will be found to be present and causing the inflammation. This should always be removed, if it can safely be done, and the resolution of the inflammatory attack will in the natural course of events follow the removal of the cause. It may sometimes be found advisable not to attempt too much at the primary sitting, on account of the condition of the patient, or it may be impossible to remove the cause. This, however, must be exceptional.

The time was when the presence of a peritoneal inflammation was a positive contra-indication to an operation. Even to-day there are many who will refuse to operate until the inflammatory attack has subsided. From the principles of treatment as laid down in this essay (drainage and depletion) it must be self-evident that the very details of the operation accomplish one of the desired results. If much of an enucleation is necessary and many adhesions are broken there will be free bleeding directly from the parts, and much good will be accomplished by this alone. Then again the operation gives the opportunity of applying the best of all treatments of any trouble whatsoever, viz: removal of the cause; but if the cause cannot be found, we are in a position to adopt a line of treatment at once both rational and necessary. As long ago as 1881 Flint wrote that "these measures, of course, are applicable only to cases in which the presence of septic, infective morbid products may be inferred. In many instances these products probably constitute the chief source of danger. The time may come when paracentesis abdominalis will have proved to be as applicable to certain cases of peritonitis as are thoracentesis, injections into the pleural cavity, and a permanent opening in the chest, in cases of suppurative pleurisy." The time has come, as Flint predicted, and if he simply means by his "septic, infective, morbid products" pus, then we are far beyond the time, and it is already an old and settled affair. Where the peritonitis is purulent, no one will dispute for an instant that the only possible chance for life is operation. But the inflammatory products thrown out from the peritoneum in every inflammatory attack are just as septic; it is simply a matter of quantity, and that is to a great extent

a matter of luck. If the quantity is too great for successful elimination, then the patient is lost. It not only is being absorbed and poisoning the blood, but is continuing, by its irritating action, to excite the inflammation, and more and more is constantly poured out into the cavity, until the patient is finally overcome.

After every abdominal section for peritonitis, whether the cause is found or not, the necessary complements of the operation are free irrigation and drainage. The irrigation washes away all the irritating and septic materials, leaves the membrane in a clean, soothed condition, and the drainage tubes stand ready to remove all new formations of these liquids. The tube not only gives the surgeon an opportunity to draw away the fluids, but also allows of free and frequent irrigations where they are considered necessary.

In treating any given case of peritonitis, unless it is decided to operate at once, the safest and most effectual treatment is by saline purges. When these fail, operation becomes necessary.

The abdomen being opened, the cause, when found, must be removed if it is possible. Whether removed or not, in the words of Price, "douching and flooding of the abdomen are absolutely necessary, and drainage is the bulwark of the whole procedure."

THE RELATIONS OF THE PHYSICIANS OF THE UNITED STATES TO THE NEXT CENSUS.

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[*Written for this Edition.*]

It is, no doubt, well known to all readers of this Journal that the Eleventh United States Census will be taken on the 1st of June, 1890, and that an attempt will then be made to obtain, not only a record of the sex, age, color, birthplace, occupation, etc., of each person then living in the United States, but also a record of all who have died in this country during the year beginning June 1, 1889, and ending May 31, 1890.

To every known physician residing in any locality in the United States where there is not a complete registration of deaths based on burial permits issued only on the certificate of a physician as to the cause of death, a little book has been sent by the Census office, with the earnest request that he will record therein, according to the form given, each and every death occurring in his practice during the Census year, and will, at the end of the year, either return the book direct to the Census office in a franked envelope sent for that purpose, or will hand the book to the enumerator who will call at his house or office to record him as a resident of the United States.

It has not been possible to ascertain the name and address of every physician living where there is no complete registration, but it has been done as far as possible, by the sending of circulars to all postmasters throughout the country asking for lists of physicians, etc., and if any one who has not received such a register, will so inform the Superintendent of the Census, or myself, giving his name and Post-office address, a copy will be promptly sent him.

Each enumerator in those districts, towns or States in which there is not known to be a complete and reliable registration of deaths at the time of their occurrence, will be instructed to inquire of each family whether any of its members have died during the Census year, and if so, to record in a special schedule of deaths, the name, age, sex, color, birth-place, occupation, cause of death, etc., for each descendent so far as he can ascertain it. As the record of death thus obtained must often be incomplete and inaccurate, especially as regards the cause of death, the enumerator will be instructed to call upon the physicians living or practicing in the locality where he has been at work, and to show them his schedule of deaths, and ask them to correct or complete it, as far as possible, for which purpose a special place is provided on the schedule.

This, however, is by no means all that the Census will ask of physicians. Upon the schedules of the living population, the following points are to be inquired into and noted by the enumerator with reference to each person, viz: 1. Name; 2. Whether a soldier, sailor, or marine, during the Civil War (U. S. or Confederate), or widow of such person; 3. Relationship to head of family; 4. Color; 5. Sex; 6. Age; 7. Whether single, married, widowed or divorced; 8. Whether married during the Census year (June 1, 1880, to May 31, 1890); 9. Mother of how many children, and number of these children living; 10. Place of birth; 11. Place of birth of father; 12. Place of birth of mother; 13. Number of years in the U. S.; 14. Whether naturalized; 15. Whether naturalization papers have been taken out; 16. Profession, trade or occupation; 17. Months unemployed during the Census year (June 1, 1889, to May 31, 1890); 18. Attendence at school (in months) during the Census year (June 1, 1889, to May 31, 1890); 19. Able to read; 20. Able to write; 21. Able to speak English, if not, the language spoken; 22. Whether suffering from acute or chronic disease, with name of disease and length of time afflicted; 23. Whether defective in mind, sight, hearing or speech, or whether crippled, maimed, or deformed, with name of defect.

In each case in which questions 22 or 23 are answered in the affirmative, the enumerator is to transfer the name to a special supplementary schedule provided for the purpose, and proceed to

obtain additional data with regard to the particular physical or mental defect or disability reported. Of these supplementary schedules there are five different kinds: one for the insane; one for the idiotic and feeble minded; one for those blind in one or both eyes; one for the deaf and for deaf mutes; and one for the sick, crippled, maimed or deformed who do not belong to either of the preceding four classes.

It will be seen that if it were possible to get these supplemental schedules properly filled out for each of the special classes of the people affected with physical or mental defects; bearing in mind that for each person so affected the data on the population schedule as indicated above, will also be obtained; we should have a vast amount of data of the greatest interest and value to the science and practice of medicine and to physicians, biologists, sociologists and sanitarians. We could compute from such data the proportion of disease, and physical and mental defects pertaining to different races, and ascertain whether the Native American, the Negro, the Mulatto or mixed blood, the Irish, the German, the Scandinavian, the Bohemian or the Italian, are specially liable to certain forms of disability, or whether we are receiving from any particular foreign country, an undue proportion of a helpless and dependent class. Taken in connection with the death record, we could tell something of the liability of certain localities to certain forms of disease or disability; the influence which the Civil War has exerted on the health, strength and productive capacity of those who took part in it; the needs for special asylums, schools, hospitals, etc., for these special classes in the several States; some of the relations between physical and mental defects, and heredity, injury and preventable causes; and many other points which I need not here detail.

But it is impossible to get these supplementary schedules completely or properly filled out by the enumerator alone. Of the 40,000 enumerators, who will be employed in taking the census during the first half of June next, a very large proportion will be men who know little and care less about the matters referred to in these special schedules. They will receive extra pay for each special record which they make, but the rate of compensation is not enough to induce them to take much time in inquiring about any particular individual.

The only members of the community who can properly answer some of the questions about the insane, the blind, and the crippled or deformed, are the physicians; these questions being mainly what is the form or degree of the insanity, disease of the eye, or deformity which exists.

It is because the completeness and accuracy of these vital statistics are so important, and because physicians alone can furnish some of the information required, that an appeal is made by the Census authorities to every physician in the United States to assist in this matter by replying to circulars of inquiry which will be sent them, and by advising the enumerators who will call upon them as to the way to fill out and complete the special supplementary schedule above referred to.

Probably one-half of the physicians of the country will respond promptly and cheerfully to these requests for information provided they are so made as to involve the least possible trouble in replying, and will do this without being specially urged thereto.

More than two-thirds of the remainder will not reply, unless specially and repeatedly solicited, not because they have any special objection to answering, but because they put it off until a more convenient time, forget it, think it wont make much difference if one man does not answer, etc.

There are, however, a certain number of physicians who will not reply because they will not furnish service or advice to the Government without compensation. Direct compensation in money cannot be given, and it is impossible to make any definite promise that the Reports and Tables which are to be compiled for the coming Census shall be furnished to all those contributing information. I can only say that I fully believe that the Vital Statistics and Statistics of the Special Classes will be fully compiled and ready for the printer within a year after the taking of the Census; that there will be no unreasonable delay in printing them; and that for every physician who contributes special information on these subjects, and who notifies me in the latter part of this year, that he desires to have a copy of either the Report on Vital Statistics or the Report on the Special Classes, when printed, I will have his name and address placed on a list which shall be forwarded to the Superintendent of the Census, with the recommendation that estimates be sent to Congress for printing a sufficient number of copies to supply each person named on the list, and, so far as the Superintendent of the Census is concerned, I am confident that this recommendation will be approved. I do not, however, ask for the coöperation and assistance of the physicians of this country, upon the grounds of this promise, but upon the same grounds upon which all railroads, banks, manufactories, and citizens generally are asked to furnish special information for the Census, viz.: That it is for the good of the whole people that this information is to be sought, compiled and published; that the amount of time and labor asked from each individual is very small; and that it is in the power of each physician to contribute something to results which are of great importance to medicine and sanitation in this country.

It is impossible to pay for this assistance; the means for so doing have not been granted by Congress; nor will it be possible to obtain an appropriation for the purpose. At the request of the Superintendent of the Census, I have taken charge of the Vital Statistics, the Statistics of the Special Classes, and the Statistics of Cities, including their water supplies, sewerage, streets, police, markets, cemeteries, etc., and shall do my best to gather all the information possible, to have it properly correllated and tabulated, and to have the results promptly published and made available for general use. And as I am doing this without any compensation whatever, except the satisfaction which fairly complete and reliable results will afford me, I do not hesitate to appeal to the physicians of the country, individually and collectively, to aid in this matter without reference to compensation, either in money or in publication.

Let us join to secure as complete a Record as possible, not only of the Vital Statistics of our country, but also of that part of our people who are physically and mentally affected, who are specially in need of aid and care, and for whom in many cases special provision must be made by the State, and let us do this because it is a good and patriotic thing for every citizen to do, and because, as members of that profession whose relations to modern science are the most intimate, we desire to increase knowledge.

THE EVOLUTION OF INFECTION. A STUDY OF SOME OF THE LIMITATIONS OF PARASITISM.

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[*Written for this Edition.*]

"Round about the accredited and orderly facts of every science there ever floats a sort of dust-cloud of exceptional observations of occurrences minute and irregular, and seldom met with, which it always proves less easy to attend to than to ignore. . . . . .

"Each one of our various *elegies* seems to offer a definite head of classification for every possible phenomenon of the sort which it professes to cover; and, so far from free is most men's fancy, that when a consistent and organized scheme of this sort has once been comprehended and assimilated, a different scheme is unimaginable."—WILLIAM JAMES.

"The longevity of an organic type has, on the whole, been in inverse proportion to its perfection."—GEIKIE.

"Their simplicity has been their salvation. A high organization brings with it many disadvantages, for the more complex the structure, the more liable it is to get out of gear.

"Ever on the alert against enemies, man's fancy multiplied them on all sides.

"What man fears, but is powerless to control, he seeks to appease."—E. CLODD.

With this rather long text I would endeavor to present some of the more obvious points which bear upon the evolution of dependent plants and animals.

There are very few students of nature to-day who are not imbued with the philosophy of evolution. Every isolated fact in the life of an organism takes on an added interest when viewed in its relations to the great principle of natural selection. From the standpoint of the evolutionist, the subject of parasitism is a very extensive one, and the relations of the pathogenic microörganisms to their host occupy only a limited district in this great province of thought.

(*a*) *Parasitism intimately related to the Law of Natural Selection.*

It can be fairly presumed that those relations of conviviality which we see existing between mutualists, between messmates, and between host and parasites, are subjects for natural selection. Indeed, the study of the fertilization of flowers shows us the most intimate dependence of a large number of plants upon their animal parasites, and this, too, accompanied by changes in the essential organs of those plants which produced forms most confusing to the earlier botanists. So mutually beneficial is the association of certain species, that they have been called mutualists. These relations are so far-reaching and intricate that they surprise us into the belief that the destruction of a single parasitic species would overthrow the equilibrium of animal life and result in changes little short of a biological revolution. I may cite the classical observation of Darwin:[1]

"In several parts of the world insects determine the existence of cattle. Perhaps Paraguay offers the most curious instance of this; for here neither cattle nor horses nor dogs have ever run wild, though they swarm southward and westward in a feral state; and Azara and Reuyger have shown that this is caused by the greater number in Paraguay of a certain fly, which lays its eggs in the navels of these animals when first born. The increase of these flies, numerous as they are, must be habitually checked by some means, probably by other parasitic insects. Hence if certain insectivorous birds were to decrease in Paraguay, the parasitic insects would probably increase; and this would lessen the number of navel-frequenting flies — then cattle and horses would become feral, and this would certainly greatly alter (as, indeed, I have observed in parts of South America) the vegetation; this again would largely affect the insects; and this, as we have just seen in Staffordshire, the insectivorous birds, and so onward in ever increasing circles of complexity."

(*b*) *Parasites are usually found Among the Smaller Organisms.*

The greater number of parasites are found among the lesser plants and animals. This is as

[1] The Origin of Species, sixth edit., part I, sec. 99.

we should suppose. The parasite deriving its support from a smaller organism would soon destroy its host, and itself perish in turn. It is secure in its position of parasitism only while it takes from its host no more than can easily be spared. The condition of parasitism then exists best when the assistance which the parasite demands, can be granted without material injury to the host, or, when the parasite is actually beneficial, or even essential to the existence of the host species.

(c) Time Necessary to Variation and Adaptation.

There is scarcely any end to the variations and modifications which an organism may undergo by natural selection, provided a sufficient time be allowed for the changes to be undergone. And, moreover, there is no part of an organism which may not be modified by this agency if such changes become advantageous to it in the struggle for existence. When, therefore, we find an adaptation of great complexity we must assume that the relations requiring such adaptation have been in action a proportionately long time. This is not only the case in the adaptations of an organism to its lifeless environments, but it is in the same degree the case in the adaptations existing between host and parasite or between messmates.

One of the most remarkable of these convivial adaptations is related by Charles Darwin in regard to the slave-making ants.

"This ant (*Formica rufescens*) is absolutely dependent on its slaves; without their aid, the species would certainly become extinct in a single year. The males and fertile females do no work of any kind, and the workers or sterile females, though most energetic and courageous in capturing slaves, do no other work. They are incapable of making their own nests, or of feeding their own larvæ. When one of the old nests is found inconvenient and they have to migrate, it is the slaves which determine the migration, and actually carry their masters in their jaws. So utterly helpless are the masters that when Huber shut up thirty of them without a slave, but with plenty of food which they liked best, and with their own larvæ and pupæ to stimulate them to work, they did nothing; they could not even feed themselves, and many perished of hunger. Huber then introduced a single slave (*Formica fusca*), and she instantly set to work, fed and saved the survivors, made some cells, attended to the larvæ, and put all to rights."

Such an adaptation of a whole species to an artificial condition would be wholly anomalous and unexplainable were it not for the fact that related species have been studied in distant localities that show a less complete adaptation to any dependence upon the condition of slavery. This complicate social arrangement probably arose by accident. The larvæ of neighboring colonies were stolen for food. They were hid away until hunger should require them, some of them hatched out and were fed and brought up, and proved useful servants. The workers of such colonies had more time for warfare and pillage, and so the number of slaves went on increasing from generation to generation with further adaptation to the new mode of life until the instinct for robbery took the place of the instinct for work. It must have required a long time to change the habits and instincts and structure of a whole species in this way. Among the Swiss *Formica rufescens* slaves are a necessity to the existence of the species. In England the *Formica sanguinea* has slaves only as a convenience, and its workers attend to a large share of the work themselves. Among other species in all parts of the world slaves are tolerated only as waifs and they enter very little into the economy of the community.

Time, then, is a most important factor in the action of natural selection, and any condition of parasitism is a very ancient one indeed which is so perfectly developed that he life of the parasitic species or the life of the host species is dependent upon its uninterrupted perpetuation for its existence.

(d) More Complex Forms Vary more Rapidly than more Simple and Primitive Forms.

The antiquity of the parasitic condition, however, does not correspond exactly with the complexity of the morphological adaptation between species, for we find that among the flowering plants adaptations have been secured limiting the fertilization of a species, which adaptations render the extinction of a single species of insect in a neighborhood equivalent to the extinction of the same plants in the same area. It is evident that the variation of the more complex plants is much more rapid and extensive than the variations of lower forms, for we find that some of the lowest forms of plants and animals have existed from the earliest geological epochs, while the more complex forms rarely present evidence of so great a longevity.

(e) The Peculiar Condition of some of the Thallogens, being Devoid of Chlorophyl, Renders a Saprophytic or Parasitic Condition Necessary to Them.

We are accustomed to look upon chlorophyl almost as an essential to vegetable existence, yet there are a great number of thallogens which are perfectly devoid of this substance. Those plants which contain chlorophyl are able to elaborate from the stable inorganic constituents of earth and air, with the help of that force which they derive from the sun's rays, organic, unstable compounds of a very complex molecular condition. Those plants which are devoid of chlorophyl must depend for their vital force not upon the sun's rays, but upon the energy released by the decomposition of those molecules of unstable equilibri-

[a] The Origin of Species, p. 412.

um which have been built up in the growth of the chlorophyl-producing plants and in that of animals.

Thus we see that by their very nature these plants devoid of chlorophyl are eminently adapted to a saprophytic or parasitic existence; in fact any other mode of life is shut off to them. In this class are found the bacteria.

(f) The Size of the Smallest Microbe is Adequate to the most Extensive and Positive Adaptations and Differentiations.

While adaptations of a most complex character are granted in the case of such large parasites as the tape-worms, the flukes and the itch insect, the same possibilities have been denied to such unicellular plants as the bacteria. The micrococci average about one micron in diameter. To the best objectives they have about as much individuality as a single star had in the field of the telescope before the introduction of the spectroscope. Does this prevent the greatest morphological and physiological complexity? Not at all. The spermatozoa of man is not much larger and yet it carries with it peculiarities of form, color, voice and psycological functions which are as complex as human life. Surely if this is the case, we do not need to question the possibility of sufficient room in a microbe for all the complexity of structure and function which the argument of this paper demands.

That there is no corresponding differentiation of structure to be seen by the most powerful microscope does not matter, for light is so gross a thing that nothing more could be expected. The extreme diameter of a micrococcus is say one micron; the length of a wave of light in the middle of the visible spectrum is about ½ a micron (E = .5269 microns). What more can be expected with such a measure? Our only hope in this direction lies in the use of much shorter waves which are far above the lavender and at the limit of photographic recognition.

(g) Definitions of the Degrees of Parasitism.

When a parasite is wholly dependent upon its host for its existence, it is said to be an obligate parasite; when a parasite is able to live outside the host species upon dead animal or vegetable matter only with difficulty, it is called a faculatative saprophyte; and when a species which ordinarily lives a saprophytic existence is able under favorable circumstances to become a parasite it is called a faculatative parasite.

I will here refer only to obligate and to faculatative parasites, for, although there are equally interesting relations existing between the faculatative saprophytes, in the consideration of one of them I have already occupied some of the time of this society.[9]

[9] Secondary Mixed Infection in Typhoid Fever. Chicago Medjour. and Examiner, 1888.

(h) Illustration of the Limitations of Obligate Parasites by the Common Tape-worms

Our tape-worms are examples of obligate parasites. They cannot live outside the bodies of their hosts. They depend for their existence upon the fact that the carnivora devour the herbivora. The eggs of the tape-worm are innumerable. They are scattered by the carniverous host in its fæces. The rains wash them into little pools and brooks, and scatter them upon the foliage and grasses. The herbivorous host takes them into its stomach in the water it drinks, or on the grass and foliage it eats. The warmth and secretions of the stomach free the embryos from the imprisonment of their egg shells. They cling to the wall of the digestive tract until they gain strength to force their way into the blood currents. There they remain until they are carried to the smallest capillaries, in which they establish themselves, and, for some unknown reason, they prefer the muscles. Here they go into a sort of pupæ state, to await the time when their herbivorous host will be overtaken and devoured by a carnivorous enemy. In the stomach of the carnivorous second host, the wall of the pupæ is dissolved. They are provided with hooks which attach themselves to the villi, or deeper structures of the intestines. Here they are bathed in a well digested nourishing material until they grow to a relatively enormous size and produce from each segment of their bodies millions of eggs to pursue a similar struggle for existence. What an enormous number of eggs perish because they never come into the proper host, what millions of encysted pupæ die in their calcified cocoons, what thousands pass through the intestinal canal without finding a proper place to attach themselves, all that a single mature and sexually perfect tape-worm may find a place in which to vegetate and procreate. What a wonderful cycle of existence is this, and what innumerable ages must it have required to develop out of the accidental ingestion of living independent articulate such a complex and obligate parasite. And what can be said of the parasites of the cat, which live the first part of their existence only in the mouse, and of the tenias of the dog and wolf, whose cysticurcus form is found in rabbits. How long did it require these specific forms to develop from original generic species? Unfortunately we can never know, but we must assume that it has been a very long time.

(i) Our Measure of Time Derived from the Changes of Animals and Plants Under Domestication.

The relation of man to the domestic animals furnishes us the only approximate measure of the rapidity of these changes. Under domestication a few mammals, birds, fishes, insects, mollusks, and some vegetables, have become so modified that they cannot be referred to any undomesticated species. How far back must men have be-

gun to cultivate the banana, which now is seedless and would perish as a species without his care? Surely so long ago that we need some other measure than the century. But to have evolved a parasite with such complex and limited relations as those of the tenia must have taken a much longer time. And how shall we explain the fact that the *Temocephala chilensis*, a small parasite on the legs of certain fresh water crustaceans of Chili, occurs identical in species in the Philippines and in Java on other articulates? Wallace has justly observed that such cases ought to be regarded as proof of the hypothesis that those types which have occasioned the similarity of remote faunas must have had a very long historical duration, persisting, very likely, through *many geological epochs*.[4]

(*j*) *The Origin of the Infectious Diseases. Three Examples: Tuberculosis, Syphilis, Measles.*

This, perhaps, calls forcibly enough to our minds the antiquity of these forms of parasitism. Let us for a moment consider the origin of such forms of parasitism as tuberculosis and the other acute and chronic infectious diseases of man and animals. While some of them are still under dispute, tuberculosis, syphilis and measles are recognized as entities, and they are considered by all fair-minded and unprejudiced scientists and physicians as due to distinct and specific parasites. These parasites are, so far as we know, specifically different from any non-parasitic organism to which they are generically related. Nor can it for a moment be supposed that the parasitic bacteria are in any other category in relation to the influence of natural selection than the parasites which belong to more highly differentiated orders of life. Indeed, the very fact that the lowest and most slowly varying vegetables have become obligate parasites is evidence of an association greater in time than we should consider necessary for the evolution of a much more complex relation existing between the more rapidly varying articulates or infusoria.

It appears that the bacillus of tuberculosis is unable to grow on any accidental or artificial media under any presumptious natural conditions of temperature and external surroundings. It is able to multiply in man and in some other mammals, and in a few related vertebrates. Therefore, we may presume that, should it be deprived of a living host even a day beyond the few months during which its spores might retain vitality, the species would become wholly extinct and the world would be free ever afterwards from the ravages of this dreadful scourge. The bacillus of tuberculosis is then an obligate parasite of the warm-blooded animals.[5] When we consider what specific difference means, and how perfectly the bacillus of tuberculosis manifests this difference, and when we see how great is its geographical distribution, we are compelled to go back far into the present geological epoch, and probably beyond it, for its origin.

In the bacillus of syphilis we have a still closer obligate parasite. It is confined to the Primates alone. All attempts to convey it from man to animals other than the Quadrumana and to artificial media have been equally unsuccessful. Here, then, is a peculiar parasite which finds in the intimate structure or other bodily conditions of all animals except a limited class such conditions as are altogether inimical to its reproduction. Since it is a parasite of as simple structure, and since it varies as slowly as tuberculosis, we must look still further back into the past for its origin from independent forms.

In measles we have an example of a parasite which is not only confined to a single species, but for the most part to the young of that species. Perhaps the most unexplainable feature of this parasitic disease is the fact that one attack renders the host immune to subsequent invasion. This fact is phenomenal and, so far as I know, wholly without explanation.

(*k*) *Obligate Parasites may not be Destructive Parasites.*

Looking upon these obligate parasites of man as of such ancient association, going back beyond the present geological epoch for the beginning of syphilis, tuberculosis, measles, scarlet fever, small-pox, whooping-cough, leprosy, and every form of tape-worm, how is it possible that man has been able to withstand the attacks of so many enemies for so long a time? The very fact that he has survived, and that these parasites are unable to exist in any other media than his living body, is conclusive proof that they are not essentially destructive parasites; for with the destruction of the host species occurs the destruction of the obligate parasite. Such a proposition appears to be axiomatic, but axioms occasionally need to be formulated. Given abundant opportunity of contagion, a destructive obligate parasite is inconceivable. It is possible only when its destructiveness does not interfere with the reproduction of the host species, as after the reproduction act has been performed.

(*l*) *Facultative Parasites may be Destructive Parasites.*

How different from the mild course of syphilis, tuberculosis, leprosy and the acute infectious diseases is that of tetanus, anthrax, malignant œdema and other forms of gangrene and the various wound diseases. Among domestic animals, when encouraged by overcrowding and filth, the saprophytic bacteria produce equally destructive diseases. Take, for example, Texas fever, hog cholera and ranch-brand. So, too, is it with yellow fever, Asiatic cholera, malaria and diphthe-

[4] Semper, Karl. Animal Life, as Affected by Natural Conditions of Existence. New York: D. Appleton & Co., 1881, p. 293.

[5] Occasional exceptions have been observed. v. Gibley, Tuberculosis in Vertebrates. The Journal of Comparative Medicine and Surgery, vol. 9, p. 318.

ria, which are doubtless facultative parasites of man. To these rare and accidental parasites we have in our skin and mucous membranes a most careful and adequate protection. By the action of natural selection the door to invasion has been closed, but within we have no adequate means of defense; so when infection does accidentally take place and the usual saprophytes become parasites, the chances are greatly against the host in the conflict that ensues. The facultative parasites may or they may not be destructive, and it is probable that against but few of them has the action of natural selection rendered us indurate.

(m) *The Destructiveness of Common Obligate Bacterial Parasites Shown to be Apparent Rather than Real.*

While we are accustomed to look upon syphilis, tuberculosis and leprosy as excessively destructive diseases, a moment's consideration is enough to clear our minds of this traditional notion. Syphilis in the strong and healthy Caucasian frequently runs the first and second stages of its course without recognition, and does not, therefore, interfere with procreation. When the infirmities of age confine the patient to unfavorable surroundings and habits of life, the tertiary symptoms come on with the reduced vitality and nutrition. Fatal or destructive syphilis in the otherwise well and healthy is rare. In children and in poorly nourished young people, and in those suffering from chronic diseases, it frequently appears as a terminal affection.

Tuberculosis in the lymph glands of the neck, in the bones and joints, in the ear, and even in the peritoneum, is not very destructive. It is frequently followed by recovery. Even in the lungs tuberculosis may run a chronic and rather harmless course, and interfere very little with the reproduction of the species. It is only after pyogenic infection of the tubercular tissues of the lungs or other areas that sepsis and symptoms called "hectic" appear. This sepsis is then the destructive factor, as it is in wound reaction.

Leprosy is the closest obligate parasite of man so far observed. The bacillus of leprosy bears a remarkable morphological relation and staining reaction to the prime factors of tuberculosis and syphilis. It is almost never a destructive disease, and it appears only in those who could have already accomplished the reproductive act; therefore it does not interfere with the perpetuation of the species. It is conveyed by contact, but only with difficulty, and there is evidence that it is not necessarily hereditary; that is to say, healthy children may be born of those who are suffering from leprosy. The attendants on persons suffering from leprosy are not often affected with the disease, but often enough to demonstrate its contagiousness.

(n) *Immunity and Protection Diminish the Destructiveness of Parasitism.*

In certain of the infectious diseases one attack protects from subsequent invasion. This is the case not only with the obligate bacterial parasites, but in a greater or less degree with the facultative parasites. It is interesting to compare the destructive power of our principal infectious diseases, the ease of infection, and the acquired immunity to succeeding invasion. In measles we have a comparatively harmless disease, the greatest ease of infection, with subsequent immunity. Scarlet fever is not so harmless, is less contagious and equally protective. Small-pox is more destructive, less contagious and equally protective. Yellow fever is far more destructive and far less contagious, and equally protective. Leprosy conveys no immunity, for the disease rarely terminates in recovery, but the infection is accomplished with the greatest difficulty and the spread of the disease is slow. Syphilis is not very destructive, it has a difficult but certain method of infection, and one attack does not so surely protect against subsequent recurrence. Instances of this kind could easily be multiplied, bringing in other factors which act in producing immunity or protection or physiological resistance, all brought about by the obvious necessities of the law of the survival of the fittest and that of heredity.

If a few indulgent and patient readers have followed my arguments to this point, the suggestion of a possible practical application will be redundant. It is obvious that a comprehension of these limitations of parasitism would not only direct future biological research, but materially assist in suggesting therapeutic measures. They also furnish a perspective in which limited data may be studied by the side of more complete facts, and they offer the greatest promise of a rich harvest in a neglected field of thought.

However we may look upon some of the minor points of this argument, or whatever exceptions we may take to the illustrations, we may fairly agree upon the following predications:

1. All obligate parasites are without exception examples of very ancient parasitism, and what is of more practical moment, they are necessarily non-destructive to the host species.

2. The destructive action of the obligate parasites is only manifested toward the weaker individuals of the race, and therefore they are a factor in the evolution of a strong and wise and morally temperate nation.

3. The dangerous consequences of secondary infection with destructive facultative parasites is emphasized, and the physician is taught that as happy results may be expected in the antiseptic treatment of the infectious diseases as have followed similar indication in the treatment of wounds.

4. The great field of expectant medicine lies in the treatment of diseases due to obligate parasites, while the great field of preventive medicine

is to be found in providing against infection with facultative parasites.

5. The use of quinine in malaria and the efficacy of mercury in syphilis will always encourage a careful lookout for specifics for other parasitic diseases, especially in those that manifest symptoms of infection of the blood currents.

6. The artificial immunity to small-pox which is acquired by vaccination is suggestive of possibilities which will be applicable to all those diseases in which one attack protects from subsequent invasion.

7. Some of the obligate parasites are shared by man with the domestic animals, and it is possible, and even probable, that in some diseases they are the most frequent source of infection. The study of the diseases of animals is indicated, and there can be little doubt that it will be followed by a diminution in the number of cases of those diseases which are common to man and domestic animals.

8. Conditions which clinically seem to be entitled to a single place in our nosological catalogue may not be entities or identities, and therefore conflicting biological studies of parasitic findings in these cases may be harmonized by a rearrangement of our nomenclature.

9. Alarmists have nothing to fear in new contagious diseases, for it is probable that all unrecognized obligate parasites are harmless, though perhaps exquisitely contagious or epidemic.

MEDICAL PROGRESS.

EXPERIMENTAL INVESTIGATIONS CONCERNING SUPPURATION.—In a recent thesis DR. J. DE C. HOLMFELD discusses the causation of suppuration, and reaches the following conclusions: In all cases of warm abscesses in men submitted to bacteriological examination the existence of microörganisms in the pus has been demonstrated. These microörganisms are few in number and well marked. Rosenbach has described them under the following names: Staphylococcus pyogenes aureus, staphylococcus pyogenes albus, micrococcus pyogenes tennis, streptococcus pyogenes. But besides the suppuration due to the presence of microbes, we are able to produce in animals suppuration that is purely chemical and entirely independent of microbes. The author has inoculated, with the greatest antiseptic precautions, the following substances: Essence of turpentine, petroleum, chloride of zinc in 10 per cent. solution, glycerine, and nitrate of silver in 5 per cent. solution. These substances, which produce no appreciable effect upon the rabbit, provoke considerable suppuration in the dog. The microscope discovers not the slightest trace of microörganisms in this pus; bouillon and gelatine remain absolutely sterile. These experiments prove that the suppuration is by no means dependent upon the presence of microörganisms in the tissues. The author therefore raises the question whether the suppurative action of the pyogenic microörganisms in the tissues is not dependent upon the presence of irritating substances in the products of secretion or in the bodies of the microbes themselves, for we are able to extract from the cultures and from the body of the staphylococcus aureus several chemical substances which are capable of producing a very pronounced pyogenic effect. The author concludes that acute suppuration should be considered as the result of chemical influences upon the organism.—*Gaz. Méd. de Paris.*

INFECTION BY THE TYPHOID BACILLUS WITHOUT INTESTINAL LESIONS.—VAILLARD and VINCENT have reported to the *Soc. Méd. des Hôp.* the case of a young soldier who was first attacked by a light case of *la grippe*. Five days after recovery he was taken with a severe cephalalgia, acute lumbar pains, cerebral excitement and high fever (40°). These symptoms, to which was added a profuse epistaxis, persisted for some days without change, when coma vigil ensued, with complete insensibility and contractions of the muscles of the neck and pharynx; there was also complete constipation. After a short period of amelioration the cerebral symptoms regained their former intensity and the patient died ten days after the beginning of his sickness. The autopsy disclosed an intense congestion of the spinal and cerebral meninges, which in places exhibited moderate serous infiltration. The lungs were congested, the spleen tumid and soft; there were *no intestinal lesions*. Cultures made from the splenic pulp, blood from the lungs, particles from the spinal marrow and medulla, all showed a bacillus similar to the typhoid bacillus, resembling it in not staining by Gram's method, and developing upon different culture media, particularly upon potato. Its characters were exactly identical with those of Eberth's bacillus.

A streptococcus from the spleen and meningeal exudate has been found which has been described in the fatal cases of *la grippe* coming under the observation of the authors. In the present case there was evidently a mixed infection from the streptococcus and typhoid bacillus. The interest in the case centres not so much in the simultaneous invasion of the organism by two forms of pathogenic microbes, as in the discovery of the typhoid bacillus in the viscera of a subject who succumbed to processes differing from those of enteric fever, the autopsy showing not a single intestinal lesion.

Are we to conclude from this that the bacillus differentiated by Eberth and studied by Gaffky, Chantemesse and Vidal, and universally accepted

as the pathogenic agent of typhoid fever, may be commonly found in subjects who have died from quite another affection? This hypothesis is inadmissible and in absolute contradiction to well established facts. It is more legitimate to admit that the patient succumbed to a typhoid infection, not pure, but mixed, an infection which appeared without the usual train of symptoms and lesions. Banti has reported a case of ileo-typhus without appreciable intestinal lesions; the spleen and mesenteric glands plainly showed the typhoid bacillus. Adenot, too, has reported a case of meningitis without intestinal changes, which appeared to him to be due to the same organism, although there was room for doubt.

From these facts it follows that infection from the typhoid bacillus may occur and end fatally without leaving the intestinal lesions which have been regarded as pathognomonic. The pathogenic agent may spend its action upon various organs, and the disease may assume clinical forms differing greatly from classical types. In these cases, so completely disguised, the true character of the infection will remain unrecognized, with fatal results, if we do not have recourse to bacteriological investigation of the spleen and other viscera. Researches of this character will serve, perhaps, to extend the domain of typhoid infection.—*Le Bul. Méd.*

PERUVIAN BALSAM IN THE TREATMENT OF TUBERCULAR AFFECTIONS.—KITTEL, in Professor Heineke's clinic at Erlangen, fourteen cases of caries and six cold abscesses were treated with Peruvian balsam according to Landerer's method. The balsam seemed to possess no advantage over iodoform and it was especially doubtful whether its use resulted in a cure of tubercular affections of the bones so that operation became unnecessary. Intra-muscular injections of the remedy produced no effect upon tuberculosis. Tests of its powers of disinfection were fairly satisfactory. —*Cent. für Klin. Med.*

MURIATE OF PILOCARPIN.—The muriate of pilocarpin has come into general use of late in England and is employed under a great variety of conditions. In recent periodicals it has been recommended.

1. To abort colds; the internal administration of 0.02 grm. is said to be sufficient to allay the various disagreeable sequelæ and to restore the patient within a few hours to his usual condition of health (*Lancet*, Jan. 4, 1890).

2. To control the convulsive attacks of hystero-epilepsy; for this purpose it is given subcutaneously in doses of from 0.01–0.02 grm. (*Journ. of Nerv. and Ment. Dis.*, April, 1889).

3. To combat the various forms of convulsions in children; in children under one year it should be given in doses of from 0.002–0.005 grm. three times a day *per rectum* (*Brit. Med. Jour.*, Jan., 1890).

4. To relieve many forms of deafness; Prof. Bronner (*Lancet*, Nov. 28, 1889) has frequently observed restoration of the normal functions of the ear from the subcutaneous application of pilocarpin. According to him the following are the conditions most susceptible to this mode of treatment: (1) deafness the result of acquired or hereditary syphilis depending upon changes in the middle or internal ear, (2) deafness from hæmorrhage or exudation in the inner ear, (3) cases of chronic catarrh with recurring exacerbations, (4) dry catarrh in its incipient stages.

On the Continent pilocarpin has been largely used for the last eight years and for the most part with good results especially in syphilis, puerperal eclampsia, cerebro-spinal meningitis, tetanus, diphtheria, dropsy from various causes, diabetes, scarlet fever, diseases of the skin and influenza. Its use in heart diseases is apt to be attended with collapse.—*Corres. für Schw. Aerzte.*

DISAPPEARANCE AND RETURN OF TUBERCLE BACILLI IN THE SPUTUM.—Upon the basis of bacteriological investigation WINTERMITZ concludes that an incomplete disappearance of tubercle bacilli from the sputum renders a new exacerbation of the process possible, although the ordinary clinical aspect of the case may be favorable; while even a complete disappearance of the bacilli does not exclude a return of the destructive processes. For these reasons he ascribes the greatest importance to the character of the clinical signs, while positive and negative evidence on the part of the bacilli only serves to increase the importance of the former.—*Cent. f. Bak. und Parasitenkunde.*

CAMPHORIC ACID IN PHTHISIS.—It is reported at the Medical Clinic of Greifswald that camphoric acid in a single dose of 1 grm. produces excellent results in the night sweats of phthisis. It is said to be well borne in all cases.—*Corres. für Schw. Aerzte.*

EXAMINATION OF SPUTUM OF SCHOOL CHILDREN FOR TUBERCLE BACILLI.—GRUSDEFF examined the sputum of 262 pupils in the ecclesiastical institute of Kostroma; the ages varied from 9 to 18 years. Although a very careful inquiry showed that 30 per cent. had pulmonary troubles, that 28 per cent. expectorated, that 31 per cent. were engaged in choral singing, that 45 per cent. secretly smoked, and that 22 per cent. had tubercular parents or relatives, nevertheless the investigator was unable to discover tubercles in a single case in the sputum, although he exercised great care in the examination and employed the most faultless methods of examination.—*Cent. f. Bak. und Parasitenkunde.*

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PROFESSIONAL UNIFICATION.

The near approach of the Annual Meeting of the American Medical Association leads to a very pertinent inquiry, as to whether or not any practical steps will be taken on that occasion, having for their purpose a forward movement along the line of a more thorough and effective organization of our entire profession than now exists. The desirability of such action can scarcely be questioned, while any method or plan that may be offered must be freely open for the fullest possible discussion, criticism and amendment.

It is well known that there are in this country more than 70,000 practitioners who hold more or less closely to an allegiance with the American Medical Association. This allegiance is often of a very nominal character, and yet carries with it very many benefits to the individual, while their usefulness to the Association absolutely amounts to nothing, or is of so intangible a nature as to be both invisible and unfelt. This leads to a demand for a more equitable adjustment of existing conditions.

Several hundred local societies claim a direct connection with, and are officially recognized as auxiliary organizations of the Association, and have an aggregate membership of many thousands. These societies are entitled to send to the annual meetings of the Association one in ten of their membership as representative delegates. Usually only a portion and often none of these elected delegates attend the annual meetings, and where there is a non-attendance the Association receives no practical benefit whatever from such auxiliaries.

Supposing, however, that all the elected delegates from all the recognized auxiliary societies were to attend the annual meetings, and thus become enrolled members, the Association would only derive one-tenth of the benefits those societies should in turn confer upon it.

This indicates not only the desirability, but an actual necessity for the readjustment of the working plan of the Association organization, so as to place it more in consonance with the radically changed conditions that have taken place, and been set in motion within the past few years.

A very extended feeling of the professional pulse in many parts of the country, with a taking of temperature, indicates a universal demand for a revision of the working plan of the Association, and a very common assent to a proposition that certain auxiliary societies should become actual branches of the great central organization, and their members recognized as veritable enrolled and active members of the American Medical Association.

There are some necessary details pertaining to this proposal of a change so important in the working plan of the Association, that for a saving of time should be referred to a committee to formulate and present to the ensuing meeting for discussion and final action. Such as:

Shall the great geographical district societies be requested to amend their scheme of organization so as to enable them to become branch associations?

The same of State, County and City Societies?

Shall the election of officers be by delegates or otherwise?

The presentation of a fair but systematic method for the collection of annual dues, and the amount, with perhaps some other matters that may be suggested, will engage the attention of the committee.

It is particularly desirable that the Journal of the Association be regularly sent to every physician in this country; this may be done through the instrumentality of the branch societies and thus made to form a channel for intercommunication that cannot be excelled. This may be brought about through the annual payment of dues in the branch associations. Using the same method now adopted in the American Medical

Association, with a proviso that any member who has once paid his annual dues including an amount sufficient to pay for the cost of the Association Journal, should on exhibition of a certificate to that effect, be exempt from a second payment, for such purpose, even though he attend meetings of the other branches, or the annual meeting of the American Medical Association.

The harmonious unification and practical bringing together as bona fide supporting members of one-half or more of the entire number of those who now claim a nominal allegiance to the American Medical Association, will be of very great value and importance, not only to every individual member, who thus becomes an active, integral part of a highly educated body, and influential organization; but the movement would be of vast significance to the entire world.

While we are persuaded that the proposition above outlined is feasible, it is now with the members of the American Medical Association soon to assemble in Nashville, to voice their wishes, and either give our suggestions the weight of their favorable endorsement and action, or allow us to go along in the old and smoothly beaten path in which we are now traveling.

THE STRUGGLE OF BIOLOGICAL PATHOLOGY IN MEDICINE.

There is no subject that can be rationally studied detached from its natural surroundings, and every effort in that direction results in interminable misunderstanding and dispute. The controversy as to the origin of life in animal and vegetable infusions was waged and settled even within the memory of our younger readers. BASTIAN fought manfully for his position, and with the defeat of his argument came the downfall of the pathology of our fathers. Before the mind of the scientific world had time to readjust itself, PASTEUR and LISTER made the practical application of the deductions from the experiments which this argument called forth, and results in wound treatment were attained which have scarcely been equaled since. Conservative English surgery was in arms. Doubtful insinuation and ridicule were called to the assistance of sarcasm and legitimate argument to overthrow the practice of Lister. His methods were tried by unthinking imitators without success, and their failures were used as arguments against the theory on which the method was founded. The antagonism which the germ theory stirred up in the minds of men accustomed to the vague theories by which wound diseases had long been explained, was intensified by personal prejudice and pique. No room was found for the growth of the antiseptic methods and principles until they had been transferred to German soil. The great hospitals of England, while they often fumed with carbolic acid, and hissed with the spray, offered only exceptional illustrations of the rational method. The whole system of medical appointment in London closed the great clinics to the younger men, and intensified the inertia for which our insular neighbors are proverbial. The growth of the scientific and Real schools in Germany had so modified the system of medical education there, and so prepared the candidates for medical studies, that laboratory work and laboratory methods occupied a much wider field in German medicine than elsewhere in the world. The indefatigable German mind, roused now by an imperial awakening, received the new ideas which came to them from Scotland and France, and cultivated them in the true scientific spirit. German medicine then was not so bureaucratic as it has since become, and the intense activity in all departments of thought offered that plasticity of mind which is so necessary to a reorganization of ideas. Almost thirty years before, VON LANGENBECK brought back from England not only the cleanly methods of English surgery and improved hospital management, but also the considerate, refined, and gentlemanly relations between patient and physician, which are so essential to proper clinical study and rational treatment. His influence had refined the *corps* of German medicine, and his coincident utilization of the rich operative experience, which he secured in France, made his clinic and his lecture-room the centre of a revolution in scientific surgery among German speaking people. No wonder then that with such men as his pupils were, and with a class of students eminently conscientious and painstaking, the invasion of biological thought was attended with the most happy results. The university system of Germany was admirably adapted to further and encourage the growth of the new ideas and the new methods, yet advance was slow, and se-

cured only by the most trying conflicts. And had it not been for the establishment of many new clinics and hospitals, it is doubtful if this antiseptic method would have yet secured that position which it now holds.

Upon an insufficient data, Lister successfully inaugurated his wound treatment, which, although shorn of some of its most conspicuous rites, still remains intact in all its essentials. His method not only broadened the field of surgery, but reduced the mortality and sufferin_, and by shortening the time of treatment, and usurping expectant treatment in a large number of chronic diseases, increased the hospital capacity of the world many fold. Surgery was rewritten in Germany, and new indications, new operations, and new prognoses were established. The conservative era of surgery began. OGSTON and ROSENBACH afterwards demonstrated the parasitic nature of all the wound diseases, and wound inflammation was reduced almost to the adage, "No bacteria, no pus." Although the practice of antiseptic surgery had reached a very high degree of perfection before the mycotic origin of wound diseases had been demonstrated, both positively and negatively by bacteriological experiment, the secure basis of fact which these researches furnished, and the indubitable deductions from the experiments on animals eliminated all those exceptional observations which were so confusing to the enquiring and inexperienced mind.

It is unnecessary to call attention to a similar illustration of the advance of antiseptic methods in obstetrics. Unfortunately these practices have been able to secure only the large hospitals. The city and country practitioners alike still atone for their sins of omission, commission, and ignorance only by "aspergillations" and ablutions of weak carbolic acid water. That rational methods and precautions are less necessary in detached confinements than in crowded and dirty hospital wards, and indeed less essential to a favorable result in obstetrics than in surgery, sufficiently explains the condition of the practice.

The eager manner in which from sheer desperation, surgeons and obstetricians acted on the indications of the germ theory of the wound diseases finds no parallel in the application of the same principles to medical diseases. On the first hint of the cause of wound disease, although substantiated by most meager proof, the prevention of infection in surgical procedures was carried to a point of perfection which, save in exceptional instances, still remains ideal as well as typical. It is not at all to their discredit, but rather to their credit that the originators and initiators of these methods carried their precautions and preventive means to a point which, in the light of modern bacteriological teachings, is little short of ridiculous.

Long before there was a possibility of bacteriological demonstration, the clinical characteristics of the acute infectious diseases led HENLE to his logical demonstration of their biological origin. The infectious and inoculable qualities of tuberculosis were demonstrated by VILLEMIN as early as 1865. The clinical study of typhus fever, typhoid fever, yellow fever and cholera, had placed these diseases in the same etiological category as the acute infectious diseases. To these clinical suggestions and logical conclusions were early added, not only the miraculously favorable results of the application of the biological study to surgery and obstetrics, but also the bacteriological demonstration of the specific cause of anthrax, gonorrhœa, typhoid fever, tuberculosis, pneumonia and cholera. The material facts on the etiology of disease handed over to the physicians by KOCH and his "specific" school are voluminous and exhaustive. Yet we see very meager improvements in the treatment, in prevention of infectious diseases, or in their death-rate in hospital or general practice. We hear complaints that bacteriological teachings are impractical, and physicians go hopelessly on in the ways of their forefathers.[1]

Why this sad neglect to utilize in medicine the principles so long and so successfully applied to surgery and obstetrics? It is possible that parasitism in other animals and in plants has not been studied enough to deduce those general principles, the understanding of which is necessary to the proper indications for the treatment of the infectious diseases. It is possible that the serious and fatal consequences of syphilis, tuberculosis, typhoid fever, and the acute infectious diseases of children, are due rather to secondary infection with facultative parasites, or secondary invasion with putrefactive bacteria, than to the

[1] Discussion Academy of Medicine, New York Medical Record, April, 1890.

primary infection by which the nosological appellation is selected. It is possible that the prevention of the infectious diseases is the only hope of medicine, as the prevention of wound diseases is the boast of surgery. It is possible that the hint given in the teachings and practice of Jenner have been too long untried in other diseases, and that the utilization of the principle on which immunity is derived in small-pox may cause a number of the contagious diseases to disappear from the civilized world. It is possible that too much attention has been paid to specific bacteriology, and that a closer relation must be established between mycological pathology and physiology before a fruitful issue can be expected. It is possible that the teachings of the German investigators must be transplanted away from all personal prejudice and bias, and among physicians who are renowned the world over as practical "doctors," before that advance will be made which is so much despaired of, though desired by all.

THE JOURNAL.

It is the purpose of the Board of Trustees under whose direction it is published, to place a copy of this Special Edition of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in the hands of every regular, registered physician in North America.

By reason of the wonderful enterprise of the commercial world methods of communication are so perfected, and the facilities at command are such, that we find it not only possible but feasible to pay our respects to one hundred thousand medical men.

It becomes at once apparent that, with the possession of such facilities for intercommunication, the field of journalism is practically without limit, since the utterances of the individual to-day may become, to-morrow, the property of the world. It is evident that journalism as a means for the universal dissemination of medical knowledge is, as yet, but in its infancy, and that medical journals in the future are not only to be multiplied in numbers, but that in the struggle for survival they will be greatly improved. As one of the practical results of such world-wide interchange of thought men in every nation are being stimulated to earnest and able investigation, until as never before, art, science and cultured brains are being consecrated to the development of medical science.

The clearer expression of the causes of disease, of the phenomena of pathological processes and of modern therapy are such that those physicians who have not, during the last ten years, been diligent readers, are to-day unable correctly to interpret the literature of their profession. The amount of work that is being carried on in the way of original investigation, in both the Old World and the New, is simply phenomenal, and while medical journals are taxed to their utmost to represent the progress that is being made, the work is continually growing upon their hands. And as no physician can long hold honorable relations with his fellows unless he be a diligent reader, an ample supply of journals becomes with him an absolute necessity. In the selection of journals those lines of work in which a physician is specially interested must govern. The specialist must have his special journals, and yet no specialist can safely confine himself to these alone.

We believe it to be a first duty of every medical man to cultivate with diligence the field that lies over against his own house; to give his energies to the building up of his own local medical society, and to the support, both by pen and purse, of his own local journal, which can best represent the work of himself and his associates. But when he shall seek, as doubtless he will, a wider range of medical reading, it is then that we commend to him as we do to the thousands of practitioners to which it now comes for the first time, the claims of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. As its official organ, it not only publishes the proceedings entire of its annual meetings, but also all of the original papers which are there submitted. These papers, each in itself complete, represent the very best thought and original research of many of the foremost men in the United States. During the last year one hundred and seventy-three such papers were published in THE JOURNAL. In the department of Medical Progress original translations from the best of foreign sources will be found. The Editorial department is represented by an able corps of writers. Among the Topics of the Week the current events of the day naturally find place. During each year a series of clinics given by distinguished teachers in the leading hospitals forms an important feature. Practical Notes are added for

the benefit of the busy practitioner. A large number of the leading medical societies in the various cities are here represented in their published proceedings. By a full supply of Foreign and Domestic Correspondence we seek to acquaint our readers with medical matters of special interest the world over.

Without disparagement to other journals, for we wish them all abundant success, we submit that in no other way can medical men better subserve their own interests than by the prepayment of five dollars each as a subscription for THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

EDITORIAL NOTES.

THE ANNUAL MEETING.—From a review of the preliminary programmes it will be seen that the various Sections of the Association are to be fully and ably represented in the annual meeting which is to convene on May 20. Nashville, renowned for its hospitality, is a city of beauty—a most inviting place for the meeting. Its location is such that large numbers of physicians who have not hitherto attended the annual meetings may easily combine pleasure and profit by a visit to Nashville, and we are confident that those who are in attendance will find themselves amply rewarded. There should be a very large registration of new members this year, and the Association should feel the impulse and the vigor which such new blood is able to impart. Let the South and the West, as never before, meet the North and the East in fraternal and professional fellowship.

THE RUSH MONUMENT.—Attention having been called to the fact that *Medicine* alone, among the professions and arts, was not represented at the National Capital by a statue of any of its great men, it was unanimously resolved by the American Medical Association that Benjamin Rush, the patriot-physician of the Revolution, merited this distinction. The statues of Chief Justice Marshall, on the part of the *Law*, and of Professor Henry, on that of *Science*, made the omission of any on that of *Medicine* especially notable and regretable. Since that time the deaf-mutes have erected their statue of Gallaudet, and Congress has added statues of Lafayette and Garfield to the already large number in honor of military and naval heroes, presidents, law-makers and others.

The existing statues in Washington have ranged in price from $15,000 to $50,000, that of Prof. Henry having cost $15,000, and that of Chief Justice Marshall $40,000, both civic statues by Story. It may be approximately estimated that $40,000 will be sufficient to erect a monument that will be unexceptionable as a work of art, and it does not admit of question that this sum can be speedily raised among the 100,000 physicians and medical students in the United States, to whose patriotic and professional sentiments the committee appointed for the purpose now appeal. Every member of the profession in the United States is urgently solicited to send a contribution, however small, immediately to the Treasurer of the Rush Monument Committee, Dr. Dewitt C. Patterson, 919 I street, Washington, D. C.

THE INTERNATIONAL EDITION.—Something of the magnitude of the work of distributing one hundred thousand copies of this week's issue of THE JOURNAL may be inferred from the fact that the weight of the paper upon which it is printed amounts to 15¾ tons.

THE Japanese journal, the *Sei I Kwai*, reports some editorial observations on the climatic influence over the causation of rheumatism and neuralgia among those who come to Japan from other countries. It says: "It is interesting to note that the horses imported into Japan from China, Corea and other countries, are almost sure to become the subject of, and be disabled by rheumatism."

DURING the International Medical Congress at Berlin there will be a meeting of delegates from the various cremation societies throughout Europe, at which the steps to be taken to make cremation legal in different countries will be discussed.

HIS Royal Highness the Prince of Wales has accepted the office of President of the College of State Medicine.

ONE and a quarter tons of the bromides are consumed annually at the National Hospital for Nervous Diseases, London.

MEDICAL INSPECTOR TAYLOR advises that coffins shall be cremated with their contents.

TOPICS OF THE WEEK.

THE MEDICAL PROFESSION AND THE WORLD'S FAIR.

"The World's Fair, if there is to be one, will be held in Chicago in 1892 or 1893. We have already called attention to the fact that American medicine and surgery should be represented, and represented well, on this occasion. It will not be necessary to attempt to hold a large series of International Congresses, as was done in Paris. We doubt very much if this could be done very successfully. Even at Paris these Congresses were not, as a rule, very notable gatherings, and were made up mainly of the French.

"It would be possible, however, for the profession of the three Americas to make some most interesting exhibits, and to have some very instructive conferences.

"Illustrations of the development of medical, surgical and sanitary science, and of hospital construction, should be made, and the occasion might well be taken to bring into closer relations with us the medical fraternity of Central and South America.

"For these various purposes a good organization and plenty of money will be needed. Probably the machinery of the American Medical Association will be employed in carrying out the plans. This Association has always made Chicago its centre, and although a good deal of criticism has been passed upon its efficiency and methods of work, yet the organization can be made, no doubt, to rise to the coming emergency.

"We have no doubt that our Chicago brethren will be heard from when the proper time comes."

The above, from a recent issue of the *New York Medical Record*, is worthy of practical consideration at the coming meeting of the American Medical Association at Nashville.

Two years ago, when the Association met in this city, there was made an exhibit of physicians' and surgeons' appliances and supplies, said to be superior to any similar exhibit ever held. The amount of practical information to be obtained in such a place on such an occasion is an adjunct education of the greatest value. What was done here can be done in Chicago, and it is hoped the project will be undertaken and made a prominent feature of the occasion.—*Cincinnati Lancet-Clinic.*

Quoting the above from the *Lancet-Clinic*, we are again reminded of the fact that one must travel abroad to learn the news at home. This is our first intimation that the headquarters of the Medical Association is at Chicago. With her accustomed modesty Chicago respectfully declines to assume any so prominent relation to the entire medical profession, so ably represented in the American Medical Association; and though it so happens that the journal of the Association is located in Chicago, those most prone to criticise will bear us witness that in the advocacy of this city as the location for the Columbian Exposition THE JOURNAL has had no part.

We are not advised that the Association has its headquarters anywhere. Newport claimed it last year, Nashville is its Mecca to-day, and time only will determine its locality a year later. We infer that our Eastern contemporary is laboring under a mild and perfectly harmless delusion, yet the practical suggestion which he makes, and heartily endorsed by the *Lancet-Clinic*, is worthy, without any reference to Chicago, of serious consideration.

It seems eminently appropriate that at the Nashville meeting an able and largely representative committee should be appointed, who should be charged with the important matter of formulating the methods by which the medical profession can be appropriately represented in connection with the Columbian Exposition; and if the gathering shall be at Chicago, her physicians will heartily unite with all who shall be interested in the common purpose, and will delight in the discharge of their whole duty, not presuming that their city is the headquarters of the Association.

THE WAY OF SUCCESS IN PRACTICE.

The following timely suggestions which we quote from the *Boston Medical and Surgical Journal* were made by Prof. David W. Cheever, at the Harvard Medical School, at a meeting of the Boylston Medical Society, March 27, 1890.

In addressing those who were about to take degrees, in referring to the essentials of success in practice he said:

The first requisite is *work*; the will to work, zeal, pertinacity; any work that is professional; always work; there is no other lasting road to success.

Cultivate good manners; they go far. Be reticent, do not gossip. Do not think aloud; it is fatal to confidence.

You are to be the family confessor; respect the confessional. Never betray professional secrets, unless under order of the judge. The laws of Massachusetts will not protect you in withholding them in a court of justice; but make them public only under protest.

Be guarded in the opinions you express; if you say but little, you will have less to take back. When the confidence of the patient wavers, be before him in asking for a consultation.

Always show a cheerful face in the sick room; its effect on the sufferer is incalculable. I hope you will be sympathetic, for you cannot feign it with success.

Never give up a case while the patient breathes. Promote euthanasy, but only with the full assent of the friends.

Stay at home; be ready in your office. Do not allow yourself to be known as anything but a doctor; everything else must be secondary, if you would build up a practice.

Begin as a general practitioner; you may remain such, with honor and profit. If you aim to be a specialist, you will be a one-sided one without first doing general practice. Take everything that comes to you and do the best you can.

Where shall you settle? Select with care, and stick. Identify yourself with a locality. If you have absolutely no capital, do not begin in a large city, unless you can earn money by side labor. Ten years in a city, five years in a town, one or two years in a village, represent the time required to get a good living. The ideal place is a medium-sized town combining an agricultural and a manufacturing population. Manufactures mean ready money, agriculture means no cash; but on the other hand, manufactures mean bad debts, and agriculture means barter, and some sort of pay for all you do.

Unlike the law, medicine leads to nothing else save science, and science is not wealthy.

So much for the lower and material view of our calling.

It is indispensable, this view; but it is not lofty. Were there nothing higher in medicine, we had best leave it. Fortunately there is something higher.

Medicine is not a trade; it is the noblest profession. Cling to that thought; never let go of it; the love of your calling; the relief of poor human suffering, the pursuit of science for its own sake. So surely as you choose the baser and material view, so surely your success shall turn to ashes in its fruition; so surely as you nourish the sacred flame of professional and scientific ardor, so surely you shall be warmed, sustained, upheld amid reverses, calumny, disappointments.

If you are thus just to yourself, be as careful to be just to other doctors. The Golden Rule is the true code of ethics. Be gentlemen, and not rude, grasping boors; respect others' rights, and yours will be respected. In no calling does bread cast upon the waters so surely return after many days. I have come to believe more and more that no effort is ever lost, no work but brings back some result. If you maintain your honor, your industry, your health, there is nothing to fear.

THE HEREDITARY FACTOR IN ALCOHOLISM.

To the thoughtful medical man, who is at the same time engaged in philanthropic work, it must often be a source of discouragement when he reflects that few, if any, of our schemes for ameliorating the condition of our fellow men do more than touch the surface of the evil attacked, leaving their obscure and deep-seated causes to go on producing a like train of ills entirely uninfluenced by our efforts. Someone asked Dr. Oliver Wendell Holmes if it were not the fact that every disease could be cured if the doctors were called early enough. "Yes," he replied, "but early enough would commonly be two hundred years in advance." That Moorish doctor spoke like a philosopher when he prayed: "Oh God, be kind to the wicked! Thou hast been sufficiently kind to the good in making them good." We must all have sometime wished that the human race could be propagated with as much care as breeders bestow upon horses and cattle; and no thinking man of our profession can contemplate without pain the marriage of consumptives, syphilitics, neurotics, or drunkards. Especially terrible, appears from recent researches, is the part played by alcoholism in heredity.

The *Progres Médical* has done the medical profession a large, good service by publishing M. Paul Sollier's Aubanel Prize Essay on the "Rôle of Heredity in Alcoholism." A more suggestive study for the physician, and a more saddening one for the philanthropist, it would be difficult to imagine. Here is original sin in terms of modern science, and the punishment threatened in the decalogue to the "third and fourth generation" is exhibited at work in perhaps its most terrible form. By abundant and well arranged statistics M. Sollier traces the afflictions of the idiot, the epileptic, the imbecile, the hydrocephalic, the choreic and the mentally debilitated, up to the alcoholic father, mother or grandparent, in so many and such clearly marked instances that it is quite impossible to deny his conclusions from the data he gives. "Conception in a state of drunkenness of the father or the mother devotes the individual conceived to a condition so profound (idiocy, complicated frequently by epilepsy, hydrocephaly, microcephaly, etc.), so that it is condemned in general to a very short existence." An alcoholic subject runs a terrible risk of conferring upon his descendants either insanity or tendency to vice or suicide or hysteria, the milder nervous disorders. The legacy of evil may miss a generation, and then appear in the next, like gout. It will generally manifest itself, if it appear in the form of dipsomania, in a taste for the same liquor as that preferred by the ancestor, and in its mildest form it will tend so to predispose the unhappy descendant to the evil of ebriety that he will find the freedom of his will in that direction seriously imperilled. The menopause, more, even, than pregnancy, seems with women a determining cause of alcoholism; or its terrible influence may first be manifested after some nervous shock, in sickness, or with advancing age. Hereditary alcoholism has a certain likeness to dipsomania, and it is a fair ground for question whether such a proved condition does not constitute irresponsibility.—Ed. *Brit. Med. Jour.—Canada Lancet.*

DEATH FROM VISCERAL AFFECTIONS AFTER OVARIOTOMY.

Dr. Coe, of New York, contributed a valuable essay, bearing the above title, to the Transactions of the American Gynecological Society for 1889. The essay is well worth the study of all surgeons who undertake abdominal sections of any kind. Pathological records of the Woman's Hospital, New York, which extend over a period of nearly twenty years, have been prepared by Dr. Coe, and they show serious visceral lesions in eighty-five cases of death following operations for the removal of ovarian cysts and diseased appendages. The most frequent complication was diffuse nephritis, which was found in thirteen cases. In no fewer than forty-three cases disease of the kidneys was detected. Mr. Doran demonstrated, as long ago as 1878, in the St. Bartholomew's Hospital Reports, that in necropsies after fatal cases of ovariotomy, renal disease of a marked character was suspiciously frequent. Dr. Coe rightly observes that when a case begins to do badly after operation, we must not always assume that something is wrong with the wound, and reproach ourselves with some omission of antiseptic precautions during the operation. Each organ should be interrogated for evidences of such a complication, as in a case of typhoid fever or pneumonia. When a patient dies from some unrecognised visceral affection, and no necropsy is made, the obscure symptoms are most probably attributed to "a low form of septicæmia."

COMMENDABLE LEGISLATION.

By a decree of the Republican Government, which came into effect at the end of last year, medical practitioners in Brazil are compelled to notify every case of yellow fever, cholera, plague, diphtheria, small-pox, measles and scarlet fever which they may be called to attend.

PRACTICAL NOTES.

CAFFEINE.

Drs. Sée and Lapicque have made some valuable researches on the action of caffeine, the results being published in the *Bulletin de l'Académie de Médecine*. They find that, when given in small doses, the drug facilitates muscular labor by increasing the activity, not of the muscle itself, but of the corresponding cerebro-spinal centre. This diminishes the sensation of effort and keeps off fatigue. The drug certainly prevents, for a time, labored breathing and palpitations due to effort. It is a mistake to suppose that it checks waste. There is no such thing as effort and action without corresponding waste; indeed, the one implies the other. More correctly, caffeine allows more exertion through a kind of physiological usury. The ingestion of aliment allows of a certain amount of exertion, but fatigue always comes on before all the assimilated products of digestion are used up. Thus a reserve is left. Caffeine uses up more or less of that reserve. Hence the drug is only of temporary benefit. When employed for too long a time, especially when no fresh food is at hand to make up for waste and to afford more reserves, caffeine is, as might be supposed, actually noxious.—*Brit. Med. Journ.*

TYPES IN DISEASE.

Not only have the most well-defined diseases marked gradations to other diseases, but the main base of many different diseases must be of one great pathological type. Where shall we limit the involvements of indigestion? What is the form of phthisis? What common form is involved in the well-known continuity of indigestion and phthisis?

As we now recognize that in the evolution of the organism, cosmic energies and their correlations must have had an orderly continuity, so we recognize that infinitely delicate changes in the correlations of the energies, and of outer environment to protoplasm and the vital activities, are the occasions for the evolution of disease. We thus feel the force of Herschel's philosophy as applied to disease, "that there is scarcely any natural phenomenon which can be fully and completely explained in all its circumstances, without a union of several, perhaps of all the sciences."—Pearse, *Provincial Med. Journ.*

DIURETIC ACTION OF THEOBROMINE.

Gram in the *Therapeutic Monatsch.*, sums up thus:

1. Pure theobromine is with difficulty absorbed. When absorbed, it is a powerful diuretic, without acting on the heart. The diuresis is the result of a direct action on the kidney.

2. The salicylate of theobromine and soda is easily absorbed; it is a powerful diuretic, and not toxic. Only once, and then in a very weak patient, did it cause a slight vertigo.

3. The usual daily dose of the salicylate of theobromine and soda is about a drachm and a half. At one dose, more than 15 grains should never be given.

CHLORALAMIDE.

Rosenthal, in the New York *Medicinische Monatsschrift*, relates his experience with this drug in twenty-eight patients, to whom 14 ounces were given in 185 doses. He obtained the best results in cases of nervous disease; it was useful in chronic cystitis, cancer of the stomach, and diabetes mellitus; little or no benefit was obtained in the emphysematous, the asthmatic, and the phthisical. Chloralamide is to be preferred to sulphonal, if a speedy effect is desired; in most of his cases the patient was asleep within an hour of the administration of the drug. As chloralamide has scarcely any effect on the heart or respiration, it is a better hypnotic than sulphonal in cases which have any disposition to collapse. In two or three cases, slight headache and giddiness were complained of. The average dose is 45 grains; this should be given an hour before sleep.—*Canadian Practitioner.*

SALICYLATE OF SODIUM IN GENERAL PRURITUS.

Dr. Wertheimer, in the *Münchener Medicinische Wochenschrift*, advises the treatment of general pruritus by means of a 3 per cent. solution of sodium salicylate, in doses of a tablespoonful thrice daily. This plan of treatment, he says, may be continued for some time, in the confident belief that it will not only promptly moderate the unpleasant pruritic symptoms, but also radically remove the underlying disease.—*New York Med. Journ.*

METHACETINE.

Mahuert says that a dose of 4 to 6 grains lowers the temperature, and may be repeated two or three times a day. Perspiration occurs in fifteen to thirty minutes afterwards; the fall of temperature lasts two or three hours, when it again rises to its former height. The heart is not at all weakened, the blood pressure is increased, there is no change in the red blood corpuscles. In acute articular rheumatism, methacetine has not proved more efficacious than phenacetine. It relieves the lightning pains of tabes, headache, neuralgia, and chronic rheumatic pains.—*La Cronica Medica*, Feb. 5, 1890.

FOREIGN CORRESPONDENCE.

LETTER FROM LONDON.

(FROM OUR OWN CORRESPONDENT.)

Ichthyol—Subcutaneous Injections of Corrosive Sublimate as a Cure for Anthrax—Honors to Officers of the Army Medical Department.

Apropos, of the recent Chloroform Commission, a story is going the rounds to the effect, that the masses of the city of Hyderabad were moved to considerable indignation at the rumor which was promulgated concerning the desire of the Commission to secure human beings for purposes of experiment. So great was the excitement in the city, that when Dr. Lauder Brunton went to India as chief Commissioner, he was advised to enter Hyderabad under escort. It so happened, that during the sittings, a good many kidnappers were arrested on the borders of the city, which gave color to the belief, and necessitated the issue by the Kowtal, of a notice, assuring the natives that the kidnappers were not in the pay of the Commission, and threatening all persons spreading false alarms.

Among a long series of remedies for skin diseases, there is perhaps none which has made such strides in favor and use as ichthyol, a substance prepared from the petrified remains of pre-historic fish and sea animals which are found in large beds in the Tyrol. This bituminous mineral when subjected to dry distillation, yields among other products a brownish-yellow translucent oil, of a specific gravity about 0.865. This raw oil is treated with an excess of concentrated sulphuric acid, and warmed; subsequently the excess of acid is removed, and from the product the salts are prepared. Ichthyol was first recommended for rheumatism, and the success which attended its use was described as astonishing. Further and recent experience with ichthyol preparations has developed new features in its therapeutical action. Externally it still maintains its reputation as a remedy for rheumatism, while for chilblains, erysipelas, and especially for ulcers of the legs, it is highly recommended. For all these affections it is being applied in the form of an ointment, composed of ichthyol 1 part, and lanolin ointment 9 parts. In this form the substance is used in some of the leading hospitals. Internally ichthyol is found to be useful in all forms of indigestion and diseases of the liver, and such morbid conditions as arise from hyperæmia and capillary dilatation with anomalies in the circulatory system, of disturbances of the digestive organs, of neuralgia, etc. The average internal dose is about 8 grains of the sodium sulphichthyolate twice a day; it is given either as pills or gelatine enclosed capsules.

Among the number of authorities who have written on the effect of ichthyol compounds is Dr. Schweninger, of Berlin, who says: "I am pleased to say that Prince Bismarck has allowed me the pleasure of notifying how extremely favorably ammonium ichthyolate has influenced the rheumatism and lumbago from which he suffered." Probably it is not often that Prince Bismarck gives medical testimonials, but he who has suffered much from rheumatism is naturally willing enough to let his fellow sufferers know how he himself has obtained relief.

Sir Morell Mackenzie recently delivered a lecture on "The Cultivation and Preservation of the Voice." The lecturer said that of the several methods for the preservation of the voice, that of cultivation was the best. In dealing with the subject of the voice one had also to touch on speech, and it was to be deplored that in England so few pains were taken to teach children how to speak. Speech was voice transformed by nature; it did not come by nature, and he maintained that the training of the voice should be begun from the cradle. Singers should avoid tobacco, alcohol and fiery condiments. With regard to the miraculous power of various drinks he thought they were mostly harmless, having a good mental or moral effect on those who used them, but as a rule, he was of opinion that a single glass of water would suffice. Smoking took away the delicacy of tone, by its use the powers of coördination were lost. It was absolutely essential that dramatic people should lead most careful and regular lives.

Subcutaneous injection of corrosive sublimate has just cured a severe case of anthrax. A large malignant pustule was situated on the back of the hand of a man who had been engaged in removing the hides of cows, having a superficial graze on the back of his hand. The index finger was of double its normal size, two extensive vesicles filled with dark serum included the dorsal aspect of the first and second phalanx, lymphatic inflammation extended from the hand up the forearm on the radial side. Six subcutaneous injections with a four thousandth solution of sublimate, were given with the view of forming a protection against the encroachment of the bacteria. It was not without some resistance on the part of the patient, in consequence of the intensity of the pain occasioned by them, that these injections were repeated during eight days. Besides the injections the hand was kept in a warm bath of sublimate solution during the day-time, and at night was covered with a cataplasm of chopped walnut leaves, moistened with the sublimate solution. This treatment was continued for six days longer, and terminated in cure of the gangrene. Cicatrization was complete in fifteen days.

The officers of the Army Medical Deparment have been well to the fore lately and the Lord Lieutenant of Ireland, speaking at a dinner given

a few days ago by the Royal College of Surgeons in Dublin, congratulated the College upon the services of three of its graduates who are now serving in the army, and who have of late years performed distinguished service. Dr. Parke, Stanley's devoted attendant, is one of these, and the others are Dr. Reynolds and Dr. Crimmins, both of whom have received the Victoria Cross.

Only recently the statement was made that cremations at Woking have now become so common that it is no longer customary when one takes place to publicly announce the fact. Now the Manchester Cremation Society are negotiating for a plot of land adjoining the Southern Cemetery in that city with a view of erecting a crematory on a large scale. Lord Egerton of Tatton, the present owner of the land, views the project with great favor. Among the vice-presidents of the Society are the names of Mr. Jacob Bright, M.P., Sir Henry Roscoe, together with the names of many of the leading medical men and clergy. It appears as though a crematory is likely to become, at no distant period, an established institution in Manchester.

Brain sugar produced by the action of a 2 per cent. sulphuric acid upon cerebrin, is said to be identical with galactose produced from a sugar of milk. G. O. M.

DOMESTIC CORRESPONDENCE.

Proposed Conference of Medical College Delegates.

To the Editor:—In THE JOURNAL of Feb. 15, 1890, you noticed briefly the fact that the medical schools and colleges of Maryland, in conference assembled, had issued an appeal to the medical colleges of the United States to send delegates to a convention to be held in Nashville, Tenn., May 21, 1890, being the same week of the annual meeting of the American Medical Association in the same city. The appeal or address alluded to, and which has been sent to all the colleges of the United States, contains the following paragraphs:

The Baltimore Medical Colleges and Johns Hopkins Hospital, having met for the consideration of reforms urgently needed in the system of medical education, have come to the conclusion that it is not expedient, nor indeed practical, for the medical schools of any State to assume alone the responsibility of adopting advanced methods; yet, fully convinced of the pressing need of a change, and earnestly desiring to see it consummated, they are unwilling to let matters rest longer as they are. . . . . We therefore invite you to join with us in holding a conference for the full consideration of medical education in this country, and measures for its improvement, and we request that you will appoint, at your earliest convenience, one or more delegates from your faculty to represent it at a meeting to be held at Nashville, Tenn., May 21, 1890. The following subjects are considered the most likely to come up for discussion: (1) Three years' course of six months' sessions; (2) graded curriculum; (3) written and oral examinations; (4) preliminary examinations in English; (5) laboratory instructions in chemistry, histology and pathology.

It will be noticed that the several questions here proposed for *discussion* are the same that occupied the attention of the American Medical Association at the preliminary meeting for organization in 1846, and for the twenty succeeding years were annually reported upon by a standing Committee on Medical Education, ending with resolutions for discussion and adoption, until at the annual meeting in 1866, as if weary of multiplying reports, resolutions and recommendations, the Association passed a resolution earnestly requesting the medical colleges of the whole country to send delegates to a convention exclusively of college representatives, to be held at the same place and near the time of the next annual meeting of the Association, for the purpose of procuring concert of action in the practical adoption of the same methods for advancing the cause of medical education as now proposed. The request of the Association was complied with by a large proportion of the medical colleges, and accordingly their delegates assembled in Cincinnati, May, 1867, and organized by the election of Prof. Alfred Stillé, of the Pennsylvania University, President, and Prof. G. C. E. Weber, of Cleveland, O., Secretary. Two days and a half were devoted to a thorough discussion of the principles and measures involved in placing the system of medical education in this country on a correct and creditable basis, at the close of which the following propositions were adopted with almost entire unanimity:

Resolved:—

1. That every student applying for matriculation in a medical college shall be required to show, either by satisfactory certificate, or by a direct examination by a committee of the faculty, that he possesses a thorough knowledge of the common English branches of education, including the first series of mathematics, the elements of natural sciences, and a sufficient knowledge of Latin and Greek to understand the technical terms of the profession; and that the certificate presented, or the result of the examinations thus required, be regularly filed as a part of the records of each medical college.

2. That every medical student shall be required to study four full years, including three regular annual courses of medical college instruction, before being admitted to an examination for the degree of Doctor of Medicine.

3. That the minimum duration of a regular annual lecture term, or course of medical college instruction, shall be six calendar months.

4. That every medical college shall embrace in its curriculum the following branches, to be taught by not less than nine Professors, namely: Descriptive anatomy, including dissections; physiology and histology; inorganic chemistry, materia medica, organic chemistry, and toxicology; general pathology, therapeutics, pathological anatomy, and public hygiene; surgical anatomy and operations of surgery; medical jurisprudence and medical ethics; practice of medicine, practice of surgery, obstetrics, and diseases of women and children; clinical medicine and clinical surgery. And that these several branches shall be divided into three groups or series, correspond-

ing with the three courses of medical college instruction required.

The first, or *Freshman Series*, shall embrace descriptive anatomy and practical dissections; physiology and histology; inorganic chemistry and materia medica. To these the attention of the student shall be mainly restricted during his first course of medical college instruction, and in these he shall submit to a thorough examination, by the proper members of the faculty, at its close, and receive a certificate indicating the degree of his progress.

The second, or *Junior Series*, shall embrace organic chemistry and toxicology; general pathology, pathological anatomy, therapeutics, and public hygiene; surgical anatomy and operations of surgery; medical jurisprudence and medical ethics. To these the attention of the medical student shall be directed during his second course of medical college instruction, and in them he shall be examined, at the close of his second course, in the same manner as after the first.

The third, or *Senior Series*, shall embrace practical medicine; practical surgery; obstetrics and diseases peculiar to women and children; with clinical medicine and clinical surgery in a hospital. These shall occupy the attention of the student during his third course of college instruction, and at its close he shall be eligible to a general examination for the degree of Doctor of Medicine.

The instruction in the three series is to be given simultaneously, and to continue throughout the whole of each annual college term; each student attending the lectures on such branches as belong to his period of progress in study, in the same manner as the sophomore, junior and senior classes, each pursue their studies simultaneously throughout the collegiate year in all our literary colleges.

5. That every medical college should immediately adopt some effectual method of ascertaining the actual attendance of students upon its lectures and other exercises, and at the close of each session of the attendance of the student a certificate, specifying the time and the courses of instruction actually attended, should be given, and such certificate only should be received by other colleges as evidence of such attendance.

6. That a committee of five be appointed by the President, whose duty it shall be to present the several propositions adopted by this Convention to the trustees and faculties of all the medical colleges in this country, and solicit their definite action thereon, with a view to the early and practical adoption of the same throughout the whole country; and that the same committee be authorized to call another convention whenever deemed advisable.

It will be seen that these propositions embrace all that is suggested in the recent call for another convention. The committee appointed under the sixth proposition discharged the duties assigned faithfully by a persistent correspondence, and finally called a second convention, which was held in Washington, May, 1869, and was presided over by the late Prof. S. D. Gross. The committee made a full report, and after a free discussion the action of the first convention was reaffirmed without altering any one of the propositions.

Why, then, did not the numerous colleges represented immediately carry into practical effect the measures endorsed by their representatives? Simply because those representatives, especially from the more important eastern colleges, disclaimed having any authority to bind their respective colleges, and hence all their action was merely advisory; and it is chiefly to call attention to this fact that I have written this letter. If the several college *faculties* merely send one or more delegates to the proposed convention in Nashville, without direct legal authority conferred by their several boards of trustees or governors, their action will again be only advisory. They will *resolve* in due form what *ought* to be done, and a large majority of them return home and continue the same inadequate methods of making doctors as heretofore. All efforts to secure uniform and concerted action of all the medical colleges in adopting any important advancement in medical education have thus far failed; and yet very important advancements have been made by a large number of the colleges, and others are coming to the front line of progress every year. More than twenty of the most prominent and best established colleges in different parts of the country are already in advance of the line indicated in the circular issued by the Maryland colleges; and should the latter wait a few years longer *in statu quo*, they will find themselves actually "alone," not in the advance, but in the rear. Let all the medical colleges send delegates to the proposed convention at Nashville fully authorized to do something more than merely to recommend, if any important results are really desired.

Yours truly,

N. S. DAVIS, M.D.

Chicago, April 21, 1890.

BOOK REVIEWS.

A NEW MEDICAL DICTIONARY. Including all the Words and Phrases used in Medicine, with their proper Pronunciation and Definitions, based on Recent Medical Literature. By GEORGE M. GOULD, B.A., M.D., Ophthalmic Surgeon to the Philadelphia Hospital, etc. With Tables of the Bacilli, Micrococci, Leucomaines, Ptomaines, etc., of the Arteries, Muscles, Nerves, Ganglia and Plexuses; Mineral Springs of U. S., Vital Statistics, etc. Small octavo, 520 pages. Half dark leather, $3.25; half Morocco, thumb index, $4.25. Philadelphia: P. Blakiston, Son & Co.

If the coinage of new words be indicative of medical progress, surely the last decade will mark an epoch in its history. In the various specialties, in fact in all departments of medical science, there has been a constant demand for the expression of new ideas and for clearer definitions of old ones. Indeed, a dictionary that shall be fully abreast of the times must be little less than a new one.

In answer to a very general demand the publishers of this volume have brought out a work which will be found of great value to the medical profession. The author's aim evidently has been to include within its pages every important

medical term to be found in the older vocabularies, and also to incorporate the thousands of new ones which give promise of permanency in medical literature. In Gynecology, Ophthalmology, Otology and Laryngology; in Biology, Embryology, Physiology and Pathology; in Electrotherapeutics, and in the newly-developed fields of Bacteriology, Ptomaines and Leucomaines, the aim has been evidently to issue an authoritative text-book, one that should be ample in its vocabulary, concise in its definitions, compact in its arrangement, and convenient of size for the every-day use of busy practitioners and as a handbook for medical students.

The author, in this respect, is to be congratulated upon his success, and so far as a careful examination enables us to judge, it faithfully represents the standard medical literature of to-day.

The Tables which are contained in this work will be found useful to many readers, especially those which refer to the names, habits and culture of Bacilli and Micrococci; also those which deal with Leucomaines and Ptomaines; while the tabulation of Arteries, Muscles and Nerves, with their names, locations, relations and functions, will present a ready reference in the moment of need.

The work is scientific and practical, compact in form and of moderate price. Messrs. P. Blakiston, Son & Co. are to be commended for the admirable manner in which the mechanical part of the work has been executed. Gould's New Medical Dictionary is a model of its kind, and among physicians and students everywhere we are confident that it will win its way and command a place.

AMERICAN MEDICAL ASSOCIATION.

List of Officers and Preliminary Programme of the Forty-first Annual Meeting,

To be held at Nashville, Tenn., May 20, 21, 22 and 23, 1890.

GENERAL OFFICERS.

President—E. M. Moore, M.D., New York.

Vice-Presidents—J. W. Jackson, M.D., of Missouri; H. H. Kimball, M.D., of Minnesota; J. H. Warren, M.D., of Massachusetts; T. B. Evans, M.D., of Maryland.

Treasurer—Richard J. Dunglison, M.D., lock box 1274, Philadelphia, Pa.

Permanent Secretary—Wm. B. Atkinson, M.D., 1400 Pine St., Philadelphia.

Local Secretary—G. C. Savage, M.D., Nashville, Tenn.

Librarian—C. H. A. Kleinschmidt, M.D., Washington, D. C.

Chairman Committee of Arrangements—Wm. T. Briggs, M.D., Nashville, Tenn.

The general Committee of Arrangements has very fully matured its plans. A social entertainment will be given at the Capitol on Tuesday, May 20, the first day on which the Association is to convene. We are advised that there are hotel accommodations for twenty-five hundred guests. The morning sessions will be held in the Vendome. The several Sections will be located in various halls convenient of access. At a point so central and so accessible there should be a full representation from all sections of the country. Not less than two thousand members should register at Nashville.

ADDRESSES AT THE GENERAL SESSIONS.

On General Medicine, by N. S. Davis, of Chicago, Ill.

On General Surgery, by Samuel Logan, of New Orleans, La.

On State Medicine, by Alfred L. Carroll, of New York.

PRELIMINARY PROGRAMME OF SECTIONS.

Section of Surgery and Anatomy.

Chairman—B. A. Watson, Jersey City, N. J.
Secretary—J. B. Deaver, Philadelphia, Pa.

1. Report of Several Cases of External Surgery of the Nose with Photographs, by Merrill Ricketts, Cincinnati.
2. Two Cases of Resection of Cæcum for Carcinoma with Remarks on Intestinal Anastomosis, by N. Senn. Milwaukee.
3. Left Inguinal Colotomy with Remarks upon other Operations, by J. McF. Gaston, Atlanta, Georgia.
4. Continuous Silk Suture for Wounds of the Intestine, with Experiments, by C. L. Lewis, New York.
5. The Management of Major Amputations, by John A. Wyeth, New York. Drs. Hunter McGuire and B. A. Watson will open the discussion.
6. Report of Cases of Hernia Relapsing after Different Methods of Radical Cure, by W. T. Bull, New York.
7. The Technique of Hysteromyomectomy, by Howard A. Kelly, Baltimore, Md.
8. The Dark Side of Supra Pubic Cystotomy with a Report of Cases, by H. O. Walker, Detroit, Mich.
9. John B. Deaver, Philadelphia.
10. The Necessary Peroxide of Hydrogen, by Robt. Morris, New York.
11. Excision in Irreducible Dislocation of Hip, by Charles Penrose, Philadelphia.
12. A Plea for Early Abdominal Section in Intestinal Obstruction, by J. G. Carpenter, Stanford, Ky.
13. Novel and Ideal Method of Knee-Joint Excision and Exploration, by T. S. K. Morton, Philadelphia.
14. Surgical Treatment of Biliary Obstruction, by Henry O. Marcy, Boston.
15. Joseph Price, Philadelphia.
16. Joseph Hoffman, Philadelphia.
17. R. H. Harte, Philadelphia.
18. Shot Wound of the Intestine with Report of Cases, by David Barrow, Lexington, Ky.
19. Operation of Radical Cure of Hernia in Early Infancy, by Thomas H. Manly, New York.
20. Paper on New and Improved Surgical Pump, by Elmer Lee, Chicago.
21. Treatment of Flat-Foot by Thomas' Method. by W. R. Townsend, New York.
22. Report of Gun Shot Wound of Brain, by J. Lee McComas, Oakland, Md.

Section of Obstetrics and Diseases of Women.

Chairman—Wm. Warren Potter, Buffalo, N. Y.
Secretary—Joseph Hoffman, Philadelphia.

1. Intra-Ligamentary Cysts, by W. H. Wathen, Louisville, Ky.
2. Primary and Ultimate Results of Vaginal Hysterectomy for Cancer, by Charles A. L. Reed, Cincinnati, Ohio.
3. Title not announced, Rufus B. Hall, Cincinnati, Ohio.
4. Gonorrhœal Disease of the Uterine Appendages, by J. M. Baldy, Philadelphia, Pa.
5. A Plea for Early Vaginal Hysterectomy in Cancer of the Uterus, by Franklin H. Martin, Chicago, Ill.
6. A Retrospect of Pelvic Surgery, by Joseph Price, Philadelphia, Pa.
7. The Treatment in Placenta Prævia, by Aug. P. Clarke, Cambridge, Mass.
8. Moot Points in the Doctrine of Placenta Prævia, by W. W. Jaggard, Chicago, Ill.
9. The Treatment of Placenta Prævia, based on an Experience of Thirty-four Cases, by G. H. Balleray, Paterson, N. J.
10. She Supposed it was Her Change of Life, by A. Vander Veer, Albany, N. Y.
11. Title not announced, by J. H. Kellogg, Battle Creek, Mich.
12. A Résumé of the Ideas of Paul Portal's Pratique des Accouchments, by John Bartlett, Chicago, Ill.
13. Psychical Results of Gynecological Operations, by I. S. Stone, Lincoln, Va.
14. Stricture of the Urethra in Women, by Ely Van de Warker, Syracuse, N. Y.
15. Title not announced, by John B. Deaver, Philadelphia, Pa.
16. Title not announced, by C. P. Penrose, Philadelphia, Pa.
17. Antiseptics in Obstetrics, by T. B. Greenly, West Point, Ky.
18. Hyperemesis Gravidarum, by R. W. Mitchell, Cincinnati, O.
19. Uterus Bilocularis, by L. H. Dunning, Indianapolis, Ind.
20. The Great Utility of Bleeding in Puerperal Convulsions, by John G. Meacham, Racine, Wis.
21. Title not announced, by Wm. E. Ashton, Philadelphia, Pa.
22. A Plea for the General Adoption of the Traction Forceps, by Joseph Hoffman, Philadelphia, Pa.
23. Surgical Treatment of Non-Pedunculated Abdominal Tumors, by Henry O. Marcy, Boston, Mass.
24. Extra-Uterine Pregnancy, with Cases, by E. E. Montgomery, Philadelphia, Pa.
25. Laparatomy for the Purpose of Restoring the Functions of the Tubes and Ovaries, by William M. Polk, New York, N. Y.
26. Abdominal Section; its Practical Success, by R. Stansbury Sutton, Pittsburgh, Pa.
27. The Intra-Peritoneal Ligature, by L. S. McMurtry, Louisville, Ky.
28. A New Operation for the Relief of Prolapse of the Anterior Vaginal Wall, by Andrew F. Currier, New York, N. Y.
29. Diseases of the Female Pelvic Organs, and when to Operate by Abdominal Section, by M. B. Ward, Topeka, Kansas.

This list is made up in the order of the reception of the titles; the papers will be grouped by subjects as near as possible for the meeting. Authors whose titles are not announced are requested to send them to the Chairman without delay.

Section of State Medicine.

Chairman—John B. Hamilton, Washington, D. C., Surgeon-General U. S. M. H. S.
Secretary—Francis S. Bascom, Salt Lake City, Utah.

FIRST DAY.

1. Annual Address of the Chairman.
2. Report of the Committee on Meteorology, by N. S. Davis, Chairman.
3. Report of the Committee on School Hygiene, by D. F. Lincoln, Chairman.
4. The Hygiene of the Eyes of School Children, by Dudley S. Reynolds.

DISCUSSION ON FOREGOING PAPERS.

5. Government Aids to Public Health, by Walter Wyman, M. H. S.

SECOND DAY.

1. The Causation of Influenza and some Allied Diseases, with Suggestions for their Prevention, by Henry B. Baker, President American Public Health Association.
2. Observation on the Symbiosis of certain Microörganisms, as influenced by Low Temperatures, by Jos. J. Kinyoun, M. H. S.

DISCUSSION ON FOREGOING PAPERS.

3. Paper, subject to be announced, by George H. Rohé.
4. Election of Section officers for ensuing year.

EVENING SESSION.

The special order of the evening will be a paper by George M. Sternberg, U. S. A. It will be illustrated by the stereopticon.

THIRD DAY.

1. Our Urban African Population, by J. Berrien Lindsley.
2. Los Angeles County, Cal., as a Home for the Aged, by Jay H. Utley.
3. Advantages and Disadvantages of High Altitudes, by T. G. Horn.
4. Bacteriology, by Frank Billings.
5. A Comparison between our College Work and that of European Medical Schools, with some Thoughts on Free Trade in Medical Diplomas Manufactured Abroad, by S. O. L. Potter.
6. Paper, subject to be announced, by J. R. Briggs.
7. Miscellaneous Business.

Section of Ophthalmology.

Chairman—S. C. Ayres, Cincinnati, O.
Secretary—E. J. Gardiner, Chicago, Ill.

1. Address by the Chairman.
2. The Uses of Jequirity, by Wm. Cheatham, Louisville, Ky.
3. Jequirity in the Treatment of Diphtheritic Conjunctivitis, by A. E. Prince, Jacksonville, Ill.
4. A Danger in the Use of Jequirity heretofore Unmentioned, by T. E. Murrell, Little Rock, Ark.
5. Enucleation in Panophthalmitis, by J. E. Sinclair, Nashville, Tenn.
6. Functional Nervous Diseases, by A. R. Baker, Cleveland, O.
7. Sympathetic Ophthalmia, by C. M. Hobbey, Iowa City, Ia.
8. Report of a Case of Sympathetic Inflammation Two Weeks after Enucleation of the Injured Eye, by Geo. H. Goode, Cincinnati, O.
9. Tobacco; Its Effects upon the Eye-Sight, by Flavel H. Tiffany, Kansas City, Mo.
10. A Simple and Reliable Astigmometer, by F. C. Hotz, Chicago, Ill.
11. The Necessity for more Care in the Setting of Lenses when Prescribed for the Correction of Eye Faults, by J. J. Chisolm, Baltimore, Md.
12. Some Observations on the Correction of Low Degrees of Astigmatism, by T. E. Murrell, Little Rock, Ark.
13. Progressive Hypermetropic Astigmatism, by W. T. Montgomery, Chicago, Ill.
14. A Clinical Study of a Series of Cases Exhibiting Slight Macular and Perimacular Changes, by G. E. de Schweinitz, Philadelphia, Pa.
15. Report of a Case of Transplantation without a

Pedicle for Cicatricial Ectropion. Blepharoplasty by Wolf's Method, by J. Morrison Ray, Louisville, Ky.

16. Some Points worthy of Consideration in the Operation for the Extraction of Cataract, by J. W. Wright, Columbus, O.

17. Case of Pemphigus of the Eyelids, by D. Emmett Welsh, Grand Rapids, Mich.

18. Tests of Visual Acuteness and the Standard of Normal Vision, by Edw. Jackson, Philadelphia Pa.

19. (a) Report of a Case of Left Lateral Homonymous Hemianopsia Associated with a Wound of the Occipito-parietal Region of the Right Side of the Head.

20. (b) Exhibition of an Instrument for the Measurement of the Radius of Curvature of Lenses, by R. Tilley, Chicago, Ill.

21. The Amblyopia of Strabismus, by Jno. F. Fulton, St. Paul, Minn.

22. The Increase of Blindness in the United States and the Importance of its Prevention, by J. L. Minor, Memphis, Tenn.

23. Eye Strain as a Cause of Headaches, by B. J. Baldwin, Montgomery, Ala.

24. The full Correction of Hyperopia with Convex Glasses, by W. Franklin Coleman, Chicago, Ill.

25. Treatment of Conjunctivitis Granulosa, by Peter D. Keyser, Philadelphia, Pa.

26. A Case of Static Lenticular Astigmatism, Acquired by Long-continued Use of Spectacles having a Faulty Position. By George Frothingham, Detroit, Mich.

27. (*a.*) Hæmorrhage after Cataract Extraction; (*b.*) Boracic Acid and Massage in Pannus, by C. R. Holmes, Cincinnati, O.

Section of Laryngology and Otology.

Chairman—John O. Roe, Rochester, N. Y.
Secretary—Frank H. Potter, Buffalo, N. Y.

1. The Value of Different Operations for Nasal Stenosis, by Max Thorner, Cincinnati, O.

2. An Anomalous Condition of the Human Voice, by Alexander W. MacCoy, Philadelphia, Pa.

3. Suggestions on the Use of Electricity in Ear Diseases, by E. L. Jones, Florence, Ala.

4. Glandular Hypertrophy at the Base of the Tongue, by A. B. Thrasher, Cincinnati, O.

5. Fractures and Concussions (Contra Coup) of the Temporal Bone as a Cause of Deafness, by Laurence Turnbull, Philadelphia, Pa.

6. The Galvano-Cautery and its Use in Certain Nasal Affections, by Wm. Cheatham, Louisville, Ky.

7. Pathology and Treatment of Tinitus Aurium, by A. A. Hubbell, Buffalo, N. Y.

8. The Importance of Surgical Means Applied to the Naso-Pharynx in the Relief of Naso-Pharyngeal and Middle Ear Catarrh, by C. W. Richardson, Washington, D. C.

9. How Can We Best Utilize for Scientific Study the Clinical Material so Abundant in Large Dispensaries? by O. B. Douglas, New York, N. Y.

10. Salol in Acute Pharyngitis and Tonsillitis, by Jonathan Wright, Brooklyn, N. Y.

11. Imperforate Auditory Canal, by Seth S. Bishop, Chicago, Ill.

12. On Laryngismus, by J. H. Bryan, Washington, D. C.

13. Hygiene of the Upper Air Tract, by J. E. Schadle, St. Paul, Minn.

14. Note on Nasal Hæmorrhage, by Frank H. Potter, Buffalo, N. Y.

15. Discussion on Croup and Diphtheria:
I. Their Identity, by D. Bryson Delavan, New York, N. Y.
II. Their Duality, by J. Solis-Cohen, Philadelphia, Pa.
III. Treatment: (*a*) Medical, by William H. Daly, Pittsburg, Pa. (*b*) Surgical, by F. E. Waxham, Chicago.

16. Throat Deafness, by E. Fletcher Ingals, Chicago.

17. Surgical Treatment of Chronic Spasm of the Larynx, by J. P. Creveling, Auburn, N. Y.

18. Tinnitus Aurium and Nasal Surgery, by H. Holbrook Curtis, New York.

Papers have also been promised by R. Norris Wolfenden, London, England; Carl Seiler, Philadelphia; E. L. Shurly, Detroit; Clarence C. Rice, New York, and M. F. Coomes, Louisville, Ky.

All those contemplating reading papers before this Section are requested to forward their titles to the Secretary at once.

Section of Diseases of Children.

Chairman—I. N. Love, St. Louis, Mo.
Secretary—E. F. Brush, Mt. Vernon, N. Y.

1. Chloral Hydrate in the Treatment of Scarlatina, by J. C. Wilson, Philadelphia, Pa.

2. The Value of Sulphonal in Children's Diseases, by W. C. Wile, Danbury, Conn.

3. Value of Atropia in Enuresis, by R. B. James, New York, N. Y.

4. Croup, by E. R. Early, Ridgeway, Pa.

5. Significance of High Temperature in Children, by W. L. Stowell, New York, N. Y.

6. Therapeutical Value of Antipyrin in Diseases of Children, by S. Henry Dessau, New York, N. Y.

7. Phenacetin in Whooping-Cough, by John T. Winter, Washington, D. C.

8. Further Observations Upon Tooth and Mouth Disease in the Relation to Human Scarlatina as a Prophylactic, by I. W. Stickler, Orange, N. J.

9. Tinea Capitis, by H. T. Dixon, Evansville, Ind.

10. Overmedication During Childhood, by B. F. Hart, Sweetsprings, Mo.

11. The Psychical Factor in Pædiatrics, by Frank Woodbury, Philadelphia, Pa.

12. Milk Sugar in Infant Feeding, by E. F. Brush, Mt. Vernon, N. Y.

Section of Medical Jurisprudence.

Chairman—T. B. Evans, Baltimore, Md.
Secretary—T. D. Crothers, Hartford, Conn.

The following is a list of titles of papers which will be read before this Section. The papers in the first and third sessions will be arranged differently, and include many others that are not announced.

FIRST SESSION.

Clinical Jurisprudence:—Reports on medico-legal questions occurring during the year. Relation of cases, etc.

1. President's Address, Responsibility in Dipsomania, by Thomas B. Evans, Baltimore, Md.

2. Medico-Legal Significance of Facts Common to Insanity and Inebriety, by T. L. Wright, Bellefontaine, O.

3. The Psychopathic Sequences of Hereditary Alcoholic Entailments, by Charles H. Hughes, St. Louis, Mo.

4. Some New Medico-Legal Questions Relating to Inebriety, by T. D. Crothers, Hartford, Conn.

5. The Medico-Legal Relation of the Physician to the Inebriate and Inebriety, by I. N. Quimby, Jersey City, N. J.

6. The Need of a New Criminal Jurisprudence Affecting Inebriety, by Norman Kerr, London, Eng., delegate from British Medical Association.

7. Subject not received, by Lewis D. Mason, Brooklyn, N. Y.

8. The Medico-Legal Relations of Central Paralysis, by D. R. Brower, Chicago.

SECOND SESSION.

Surgical Jurisprudence.—Papers on medico-legal questions in surgery and toxicology, etc. Discussion.

1. Medico-Legal Relations of Abdominal Surgery, by Albert Vanderveer, Albany, N. Y.

2. Medico-Legal Bearings of the Battey Operation, by Robert Battey, Rome, Ga.

3. What is the Medico-Legal Status of the Abdominal Surgeon? by William Porter, Buffalo, N. Y.

4. Medico-Legal Aspects of Gunshot Wounds of the Abdomen, by Nicholas Senn, Milwaukee, Wis.

5. The Responsibility in Cases of Intestinal Obstruction, by B. T. Shimwell, Philadelphia, Pa.

6. Some Special Reasons Why the Laparotomists Should Consider the Medico-Legal Aspects of Abdominal Surgery, by Henry O. Marcy, Boston, Mass.

7. Exploratory Laparotomy from a Medico-Legal Standpoint, by William C. Wile, Danbury, Conn.

8. The Medico-Legal Responsibility in Abdominal Surgery, by J. D. S. Davis, Birmingham, Ala.

9. The Medico-Legal Questions Which Arise from the Mistakes of Abdominal Tumors for Pregnancy, by David W. Yandell, Louisville, Ky.

10. The Legal Responsibility in Surgery of the Abdomen, by Thomas H. Manly, New York, N. Y.

THIRD SESSION.

Medico-legal question in the practice of medicine, including obstetrics and insanity, etc. Discussion.

1. The Legal Aspects of Spinal Concussion, by S. V. Clevenger, Chicago, Ill.

2. Medico-Legal Relations Between Railway Surgeons, the Company and the Injured, by R. Harvey Reed, Mansfield, O.

3. Traumatic Neurosis: Its Medico-Legal Relations, by Frederick Peterson, New York, N. Y.

4. Injury Inflicted by Unscrupulous Malpractice Suits, by Wm. F. Waugh, Philadelphia, Pa.

5. Newspaper Canards as Factors in the Insane Hospital Management, by James G. Kiernan, Chicago, Ill.

6. The Relation of the Physician to the Problem of the Correction of Vice, by G. Frank Lydston, Chicago.

7. Some Facts Concerning the Jurisprudence of Medical Electricity, by Clark Bell, Esq., New York, N. Y.

Authors of papers whose titles are not announced, and others who expect to read papers or present records of cases, are requested to send them to the Secretary at Hartford, Conn., at once.

Section of Practice of Medicine, Materia Medica and Physiology.

All communications should be addressed to the Chairman, Dr. J. H. Musser, Fortieth and Locust streets, Philadelphia, as the Secretary has been called to Europe.

FIRST DAY.

1. Address of Chairman.

2. Filaria, with the presentation of a patient, by — De Saussure, Charleston, S. C.

3. Heart Affection at High Altitudes, by S. E. Solly, Colorado Springs, Col.

4. Calomel as a Diuretic, by George Fackler, Cincinnati, O.

5. The Treatment of Insomnia and Neuralgia by Butyl Chloral Hydrate, by Hobart A. Hare, Philadelphia.

6. Recent Clinical Notes on Exophthalmic Goitre, by E. D. Furgeson, Troy, N. Y.

7. On the Treatment of Bright's Disease With Chloride of Sodium, by A. Memminger, Charleston, S. C.

8. Cleanliness and Pure Air in Maternity Work, by Joseph Price, Philadelphia.

9. Antiseptics, by Hiram Corson, Conshohocken, Pa.

10. Rheumatism and its Treatment by the Turkish Bath, by C. H. Shepard, Brooklyn, N. Y.

11. The General Action of Phenacetin, by George H. Pierce, Danbury, Conn.

12. Clinical Notes on Alterations in the Respiratory Rhythm, by Wm. A. Edwards, San Diego, Cal.

SECOND DAY.

13. The Continued Fevers of the South. Discussion opened by W. W. Johnston, Washington, D. C., and J. R. Furniss, Selma, Ala. 1. Their Nature, by John P. Wall, Tampa, Fla.; E. Marechal, Mobile, Ala.; R. Matas, New Orleans, La.; T. J. Happel, Trenton, Tenn.; D. C. Ewing, Batesville, Ark.; F. L. Sim, Memphis, Tenn.; J. C. Shepard, Winchester, Tenn. 2. The Differential Diagnosis, by George Dock, Galveston, Texas; B. F. Humphries, Hawkins, Texas; James E. Reeves, Chattanooga, Tenn. 3. The Renal Sequelæ of Malaria, by A. Memminger, Charleston, S. C.

14. The Ocular Complications of Malaria, by G. E. de Schweinitz.

15. Continued Fever of Charleston, S. C., or Gastro-Hepatic Fevers, by Thomas Legare, Charleston, S. C.

16. Malaria and the Causation of Periodic Fevers, by H. B. Baker, Lansing, Mich.

17. Chemical and Bacteriological Examination of Some Water Supposed to Have Caused Typhoid Fever, by Victor C. Vaughan, Ann Arbor, Mich.

18. Specific Treatment of Typhoid Fever, by J. H. Van Eman, Kansas City, Mo.

19. Naphthol in Typhoid Fever, by L. Wolff, Philadelphia.

20. Has Progress Been Made in the Medicinal Treatment of Typhoid Fever? by T. J. Happel, Trenton, Tenn.

21. The Modern Treatment of Rheumatism, by John V. Shoemaker, Philadelphia.

22. Facial and Thoracic Deformities Incident to Obstruction of the Naso-Pharynx, by W. E. Casselberry, Chicago.

23. Sulphonal, the Conditions and Limitations of its Value as a Hypnotic, by Henry M. Field, Newton, Mass.

24. Neurasthenia, by I. D. Wiltrout, Hudson, Wis.

25. A Substitute for the Kymographeon, by John P. Sawyer.

THIRD DAY.

26. Abuses of Antipyretic Medication, by S. Solis-Cohen, Philadelphia, Pa.

27. Oxygen, its True Value as a Therapeutic Agent, by J. M. French, Cincinnati, O.

28. Note on a Case of Fatal Leukæmia following Prolonged Lactation, by W. W. Jaggard, Chicago.

29. The Therapy of Tuberculosis Pulmonum, by James T. Whittaker, Cincinnati, O.

30. The Therapy of Phthisis Pulmonalis, by E. L. Schurley, Detroit, Mich.

31. Bright's Disease as a Neurosis, by John A. Benson, Dunning, Ill.

32. Functional Albaminuria, by Wm. B. Davis, Cincinnati, O.

33. On the Management of Obstinate Dropsies, by Jas. Tyson, Philadelphia.

34. Reform Therapeutics, by Joseph H. Warren, Boston, Mass.

35. Hydrophobia: (*a*) Clinical Study of Hydrophobia, with Statistics and Report of Cases, by Harold N. Moyer, Chicago; (*b*) Pasteur's Preventive Inoculation of Rabies, by A. Lagorio, Chicago. Discussion by C. W. Dulles, Philadelphia.

36. Antiseptics, by Hiram Corson, Conshohocken, Pa.

FOURTH DAY.

37. Consideration of Auto-intoxication from Nitrogenous Elements of the Food when Taken in Excess, by John P. Sawyer, Cleveland, O.

38. Influenza, by J. B. Johnson, Washington, D. C.

39. Water, the Parallelism of its Uses in the Physical World and the Human Cosmos, by G. W. Drake, Chattanooga, Tenn.

40. Some of the Vagaries of the Grip, by C. F. Ulrich, Wheeling, W. Va.

41. Present Status of Forced Respiration, by George E. Fell, Buffalo, N. Y.

42. Pneumonia and Bronchitis following La Grippe, by D. M. Wick, New Hartford, Iowa.

43. On the Treatment of Bright's Disease with Chloride of Sodium, by A. Memminger, Charleston, S. C.

44. General Aspects of Bacteriology and Medicine, by H. C. Markham, Independence, Iowa.

45. The Etiology, Pathology and Treatment of Typhoid Fever, by J. McFadden Gaston, Atlanta, Ga.

46. Title not supplied, by Geo. Dock, Galveston, Tex.

47. Bacteriology in Medicine, by Frank Billings, Chicago, Ill.

Section of Dermatology and Syphilography.

Secretary—William T. Corlett, Cleveland, O.

FIRST DAY, TUESDAY, MAY 20.

Section meets at 2 P. M. each day.

1. Address by the Chairman, Recent Advances in Dermatology and Syphilography.

2. The Relative Value of Mercury and the Iodine Compounds in the Treatment of Syphilis. Discussion by L. Duncan Bulkley, New York, William T. Corlett, Cleveland.

3. A Peculiar Case of Addison's Disease, by A. H. Ohmann-Dumesnil, St. Louis.

4. The Care and Treatment of the Nails, by J. V. Shoemaker, Philadelphia.

5. Herpes Zoster Gangrinosa of Koposi. A Report of Two Cases, by B. Merrill Rickets, Cincinnati.

6. Some Recent Observations of Leprosy, by P. S Abraham, London.

Appointment of Committee to nominate officers for the ensuing year.

SECOND DAY, MAY 21.

Election of Officers (time fixed by By-Laws).

7. The Etiology and Treatment of Acne. Discussion by Carl Seiler, Philadelphia, B. Merrill Ricketts, Cincinnati.

8. On the Preparation and Employment of Ointments in Diseases of the Skin, by L. Duncan Bulkley, New York.

9. Diseases of the Skin of Nervous Causation. A Report of Two Cases by William T. Corlett, Cleveland.

10. A few more Remarks on Dermatitis Herpetiformis, by A. Ravogli, Cincinnati.

11. Answers to Questions Deposited in Question Box Relating to Dermatology and Syphilography.

THIRD DAY, THURSDAY, MAY 22.

12. Sycosis, its Pathology and Treatment. Discussion by J. V. Shoemaker, Philadelphia, A. Ravogli, Cincinnati.

13. Demonstration of Syphilitic Spores in Blood, by Ephraim Cutter, New York.

14. The Scarlatiniform Erythema of Typhoid Fever, by A. H. Ohmann-Dumesnil, St. Louis.

15. Massage in Skin Diseases, by J. Leslie Foley, Montreal.

16. An Eruption Following the Use of Boracic Acid, with Colored Plates, by William T. Corlett, Cleveland.

17. Further Observations on Paget's Disease of the Nipple, by Louis Wickham, of the Hôpital St. Louis, Paris.

18. Answers to Questions Deposited in Question Box.

Section of Dental and Oral Surgery.

Chairman—J. L. Williams, Boston, Mass.

Secretary—Eugene S. Talbot, Chicago, Ill.

1. Address by Chairman, J. L. Williams, of Massachusetts.

2. Relation of Tropho-Neuroses to Disease of the Mouth and Jaws, with Special Reference to Syphilitic Necrosis, by G. Frank Lydston, Chicago, Ill.

3. How the Vascular Supply is Connected with the Teeth, by A. O. Hunt.

4. Vascular Tumors of the Mouth, and Treatment by Injection, by John S. Marshall, Chicago, Ill.

5. Electro-Therapeutics, by John L. Gish.

6. The Value of Illustration in the Lecture-Room, by L. D. McIntosh, Chicago, Ill.

7. Adenoid Growths and their Effect on the Mouth, by E. E. Briggs.

8. Cure for Cleft Palate by a Double Flap Operation and Closure with the Buried Tendon Suture, by Henry O. Marcy, Boston, Mass.

9. Hereditary Dental Anomalies, by Wm. S. Sherman.

10. Diseases of the Gums, and their Treatment, by J. Tait.

11. Irregularities of the Teeth Caused by Neurotic Conditions, by E. S. Talbot, Chicago, Ill.

Instructions to Delegates.

"The delegates shall receive their appointment from permanently organized State Medical Societies, and such County and District Medical Societies *as are recognized by representation in their respective State Societies*, and from the Medical Department of the Army and Navy, and the Marine-Hospital Service of the United States.

"Each State, County and District Medical Society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number; *provided*, however, that the number of delegates for any particular State, Territory, county, city or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the Association."

Members by Application.—Members by Application shall consist of such members of the State, County and District Medical Societies entitled to representation in this Association as shall make application to the Treasurer and accompany said application with a certificate of good standing, signed by the President and Secretary of the society of which they are members, and the amount of the annual membership fee, five dollars. They shall have their names upon the roll, and have all the rights and privileges accorded to *permanent members*, and shall retain their membership upon the same terms.

The following resolution was adopted at the session of 1888:

"That in future each delegate or permanent member shall, when he registers, also record the name of the Section, if any, that he will attend, and in which he will cast his vote for Section officers.

Secretaries of Medical Societies as above designated are earnestly requested to forward, *at once*, lists of their delegates.

Also, that the Permanent Secretary may be enabled to erase from the roll the names of those who have forfeited their membership, the Secretaries *are, by special resolution*, requested to send him annually a corrected list of the membership of their respective societies.

AMENDMENTS TO THE BY-LAWS.

Offered by Dr. A. L. Gihon, United States Navy.

That the first day of the meeting of this Association shall be on the first Wednesday of May or June respectively, instead of Tuesday.

By Dr. X. C. Scott, Ohio:

That the Committee on State Medicine be abolished, inasmuch as the Section on State Medicine occupies the entire ground.

Committee of Arrangements, Dr. William T. Briggs, Nashville, Tenn.

WILLIAM B. ATKINSON, Perm. Sec'y.

INTERNATIONAL MEDICAL CONGRESS, BERLIN, 1890.

Digest of Regulations and Programme.

The Tenth International Medical Congress will be opened in Berlin on Monday, August 4, 1890, and will be closed on Saturday, August 9.

The Congress shall consist of legally qualified medical men who have inscribed themselves as members, and have paid for their card of membership. Other men of science who interest themselves in the work of the Congress, may be admitted as extraordinary members.

Those who take part in the Congress shall pay a subscription of 20 marks (£1 stg. or $5) on being enrolled as members. For this sum they shall receive a copy of the Transactions, as soon as they appear. The enrollment shall take place at the beginning of the Congress. Gentlemen may, however, be enrolled as members by send-

ing the amount of their subscription to the Treasurer[1] with their name, professional status and residence appended.

The work of the Congress shall be discharged by eighteen different Sections. The members shall declare upon enrolment to which Section or Sections they intend more particularly to attach themselves.

The Committee of Organization shall, at the opening sitting of the Congress, suggest the election of a definite Committee (or Bureau), which shall consist of a President, three Vice-Presidents, and of a number—as yet undetermined—of Honorary Presidents and Secretaries.

At the first meeting of each Section a President and certain number of Honorary Presidents shall be elected; these latter shall conduct the business of the Sections in turn with the Presidents.

On account of the different languages employed, a suitable number of Secretaries shall be chosen from among the foreign members.

The Congress will assemble daily, either for a general meeting or for the labors of the different Sections. The general meetings will be held between 11 and 2 o'clock. Three such meetings will take place.

Addresses in the general sittings, as well as in any extraordinary meetings which may be determined upon, can only be given by those who have been specially requested by the Committee of Organization.

In the sittings of the Sections questions and problems will be discussed which have been agreed upon by the special committees of organization. The communications of those appointed by the committee to report on a subject shall form the basis of discussion.

Introductory addresses in the Sections must, as a rule, not exceed twenty minutes in length. In the discussions no more than ten minutes are allowed to each speaker.

All addresses and papers in the general and Sectional meetings must be handed over to the secretaries, in writing, before the end of the sitting. The members who have taken part in the discussions will be requested to hand over to the secretaries before the end of the day, in writing, the substance of their remarks.

The official languages of all the sittings shall be German, English and French. The regulations, the programme and the agenda for the day will be printed in all three languages.

The acting President shall conduct the business of each meeting according to the parliamentary rules generally accepted in deliberative assemblies.

Communications or enquiries regarding the business of separate Sections must be addressed to the managing members thereof. All other communications and enquiries must be directed to the General Secretary Dr. Lassar, Berlin NW., 19 Karlstrasse.

SPECIAL SECTIONS—COMMITTEES OF ORGANIZATION.

Anatomy.—Fleming, Kiehl; Hasse, Breslau; Hertwig,[2] Berlin, W., Maassenstr. 24; His, Leipzig; v. Kölliker, Würzburg; Kupffer, München; Merkel, Göttingen; Schwalbe, Strassburg; Wiedersheim, Freiburg.

Physiology and Physiological Chemistry.—Bernstein, Halle; du Bois-Reymond,[2] Berlin, W., Neue Wilhermstr. 15; Biedermann, Jena; Heidenhain, Breslau; Hensen, Kiel; Hüfner, Tübingen; H. Munk, Berlin; Hoppe Seyler, Strassburg; Voit, München.

General Pathology and Pathological Anatomy.—Arnold, Heidelberg; Bollinger, München; Grawitz, Greifswald; Heller, Kiel; Ponfick, Breslau; v. Recklinghausen, Strassburg; Virchow,[2] Berlin, W., Lchellingstr. 10; Weigert, Frankfurt a M.; Zenker, Erlangen.

Pharmacology.—Binz, Bonn; Böhm, Leipzig; Filehne, Breslau; Jaffé, Königsberg; Liebreich,[2] Berlin, N.W., Dorotheen-Str. 34 a; Marmé, Göttingen; Pensoldt, Erlangen; Hugo Schulz, Greifswald; Schmiedeberg, Strassburg.

[1] Treasurer's address: Dr. M. Bartels, Berlin SW., Leipzigerstrasse 75. Please to enclose a visiting card.

Internal Medicine.—Biermer, Breslau; Gerhardt, Berlin; Leube, Würzburg; Leyden,[2] Berlin W., Thiergartenstr. 14; Lichtheim, Königsburg; Liebermeister, Tübingen; Moaler, Greifswald; Naunyn, Strassburg; v. Ziemssen, München.

Diseases of Children.—Baginsky, Berlin; Heubner, Leipzig; Henoch,[2] Berlin W., Bellevuestr. 8; Kohts, Strassburg; Krabler, Greifswald; Ranke, München; Rehn, Frankfurt a M.; Steffen, Stettin; Soltmann, Breslau.

Surgery.—Bardeleben, Berlin; v. Bergmann,[2] Berlin N. W., Alexander Ufer 1; Czerny, Heidelberg; König, Göttingen; v. Lotzbeck, München; Schede, Hamburg; C. Thiersch, Leipzig; Trendelenburg, Bonn; Wagner, Königshütte.

Obstetrics and Gynecology.—Fritsch, Breslau; Gusserow, Berlin; Hegar, Freiburg; Hofmeyer, Würzburg; Kaltenbach, Halle; Löhlein, Giessen; Martin,[2] Berlin N. W., Moltkestr. 2; Olshausen, Berlin; Winckel, München.

Neurology and Psychiatry.—Binswanger, Jena; Emminghaus, Freiburg; Erb, Heidelburg; Fürstner, Heidelburg; Fleschsig, Leipzig; Grashey, München; Hitzig, Halle; Laehr,[2] Berlin-Zehlendorf; Jolly, Strassburg.

Ophthalmology.—O. Becker, Heidelburg; von Hippel, Giessen; Eversbusch, Erlangen; Hirschberg, Berlin; Leber, Göttingen; Michel, Würzburg; Schmidt-Rimpler, Marburg; v. Zehender, Rostock; Schweigger,[2] Berlin N. W., Roonstr. 6.

Otology.—Bezold, München; Bürkner, Göttingen; Kirchner, Würzburg; Kuhn, Strassburg; Kessel, Jena; Lucae,[2] Berlin W., Lützowplatz 9; Magnus, Königsberg, Moos, Heidelburg; Trautmann, Berlin.

Laryngology and Rhinology.—B. Frankel,[2] Berlin N. W., Neustädtische Kirchstr. 12; Beschorner, Dresden; Gottstein, Breslau; A. Hartmann, Berlin; Jurasz, Heidelburg; H. Krause, Berlin, Michael, Hamburg; Schech, München; M. Schmidt, Frankfurt a. M.

Dermatology and Syphilography.—Caspary, Königsberg; Doutrelepont, Bonn; Köbner, Berlin; Lassar,[2] Berlin N. W., Carlstr. 19; Lesser, Leipzig; G. Lewin, Berlin; Neisser, Breslau; Unna, Hamburg; Wolff, Strassburg.

Diseases of the Teeth.—Busch,[2] Berlin N. W., Alexander Ufer 6; Calais, Hamburg; Holländer, Halle; Hesse, Leipzig; Fricke, Kiel; Miller, Berlin; Partsch, Breslau; Sauer, Berlin; Weil, München.

Hygiene.—Flügge, Breslau; Gaffky, Giessen; Graf, Elberfeld; F. Hofmann, Leipzig; R. Koch, Berlin; Lehmann, Würzburg; Pistor,[2] Berlin W., v. d. Heydstr. 13; Wolffhugel, Göttingen; Uffelmann, Rostock.

Medical Geography and Climatology (History and Statistics.—Abel, Stettin; Brock, Berlin; Dettweiler, Falkenstein; Falkenstein, Lichterfelde; Finkelnburg, Bonn; Guttstadt, Berlin; A. Hirsch,[2] Berlin W., Potsdamer Strasse 113; Lent, Koln; Wernich, Coslin.

State Medicine.—Falk, Berlin; Günther, Dresden; v. Hölder, Stuttgart; Knauff, Heidelburg; Liman, Berlin S. W., Königgrätzer Strasse 46 a; Schönfeld, Berlin; Schwarz, Koln; Skrzeczka, Berlin; Ungar, Bonn.

Military Hygiene.—v. Coler, Berlin; v. Fichte, Stuttgart; Grasnick, Berlin; Grossheim, Berlin; Krocker, Berlin W., Madgebuager Platz 3; Mohr, München; Mehlhausen, Berlin; Roth, Dresden; Wenzel, Berlin.

AMERICAN COMMITTEE.

S. C. Busey, Washington, D. C.; Wm. H. Draper, New York City; R. H. Fitz, Boston, Mass.; H. Hun, Albany, N. Y.; A. Jacobi, New York City; Wm. T. Lusk, New York City; Wm. Osler, Boston, Mass.; Wm. Pepper, Philadelphia, Pa.; J. Peyre Porcher, Charleston, S. C.; J. Stewart, Montreal, Can.

Those who have notified the Secretary of their intention to go to Berlin will in due time receive the proper certificate which will entitle them to the reduced rates. Those who have not sent their names are requested to do so at an early date. WM. B. ATKINSON,
1400 Pine St., Philadelphia.

[2] Managing members.

PROGRESS IN PHARMACY AND THERAPEUTICS.

Applications to the Skin.

The treatment of skin diseases, depending largely upon prevailing pathological views, has kept pace with the progress in that direction. But the preparation of remedies to meet the demands of dermatological practice has until recently made comparatively little change. The cerates, ointments, plasters, and poultices in use are the same as have been known from the earliest history of medicines.

The attention of the manufacturers of medicated plasters has hitherto been directed chiefly to perfecting the mechanical excellence of their preparations, overlooking the real aim and end for which a plaster is made, viz.: the capacity of such a preparation to promote absorotion of the incorporated drug.

"It is evident that the preparations, as at present recognized in pharmacy, do not fulfill what is required of them; that pace has not been kept with the progress of medical science in the treatment of this class of diseases; that treatment fails, not because the physician has not chosen the proper remedy, but because of the manner it was dispensed; *that failure is due, not to poor drugs, but to poor dispensing*. In this line pharmacy is centuries behind the practice of dermatology."[1]

THE APPLICATION OF MEDICAMENTS TO THE SKIN.

"In skin diseases, external local procedures must mainly be considered.

"Attention must be called to the fact that the number of external remedies is small, but the capacity of manipulating them is very great, and that the chief secret of success depends more upon technical skill than upon the number of remedies."—Auspitz.

"The treatment of the skin diseases cannot be made so simple that we have merely to bring the requisite drug into contact with the surface, and for these reasons:

"In many cases the mode of the application of the medicament is of the greatest importance; indeed, the choice of the method of the application is here often of more import than the choice of one remedy out of several of about equal value."—Unna.

"Fats produce the greatest effects upon the skin when employed in the greatest possible density. An ointment upon an eczematous surface would have a more curative effect than a fluid, fat or oil. A pasty ointment that will adhere to the skin is preferable to a greasy ointment that will run over the clothes."—Fox.

"Ointments are employed with three objects, namely: 1. To cover and protect abraded and inflamed areas. 2. To act as stimulants to the cutaneous surface. 3. As a means of conveying medicine to the skin or general economy."—Van-Harlingen.

IMPROVED DRESSINGS FOR THE SKIN.

A method of applying medicaments to the skin to be in accord with the more recent progress in dermatology, should be somewhat as follows:

1. The base must be used of such substance as will allow the drug it carries to be readily absorbed.

2. The base should be readily absorbable, to carry the drug with it.

3. The drug must be either in soluble form, or so minutely divided as to pass into and through the outer layer of the skin.

4. The preparation in itself must have the power of removing obstructions to absorption on both healthy and diseased skin.

5. It must have in itself the power of promoting absorption of products of inflammation.

6. It must in itself absorb and decompose the watery and fatty exudations of the skin when required.

7. It must be protective against external influences, especially where the outer skin is removed or broken.

8. It must be cleanly, so as to be applied to any part of the body under any circumstances.

9. It must be not only non-irritating, but soothing.

10. It must be of a form to be easily applied and easily removed.—Dr. James Nevins Hyde.

To meet these points so generally conceded as requisite in medical applications for the skin, various attempts have been made. Unna's suggestions of plaster mulls, ointment mulls, kaolin and gelatine pastes, while improvements have not met with universal approval or extended adoption. American pharmacy has more nearly met the required conditions in the class of preparations known as Gelatole Ointments, Gelatole Emulsions, Gelatole Plasters, and the Water Dressings, or Spread Poultices.[2]

In the ointments and plasters the drug is made soluble mainly by the aid of a suitable sulpho-oleic salt. This is combined with an absorbable fatty base, and a gelatinous mass is added to give consistency also in the ointment to form a protective film.

Sulpho-oleic acid neutralized with a sodium or potassium base is a solvent for at least a small percentage of almost any drug. When the limit of its solvent power is reached, a very large amount is so emulsified as to be readily miscible with proper vehicles for use. A wide range of

[1] Paper by Fred B. Kilmer, read before A. P. A., San Francisco, 1889, on "Pharmacy Applied to Preparations for the Skin."

[2] Manufactured by the well known firm of Johnson & Johnson, manufacturing chemists, New York.

drugs may thus be brought into a condition to readily penetrate the skin. The action of such substances, when applied to the skin, is largely due to their affinity for liquids, whereby the layer of air upon the surface of the skin is displaced and a close contact established between the compound and the glands and follicles, and absorption rapidly follows; also the slight saponifying action of the sulpho-oleic acid, whereby the fatty exudation of the skin (dirt and other matters) are emulsified, and their power to prevent absorption removed."—Kilmer.

Dressings of this nature are to be applied by rubbing down slightly and dusting with a powder puff, using the ordinary rice flour toilet powder or starch. Such a dressing will not smear or run, will form a protective coating for broken or tender surfaces, and will not soil the clothing. They may be spread on cloth and applied. But the dressing dusted with starch is preferable. such a dressing is also protective against external irritation by the clothing, etc., or the action of the air.

Gelatole plasters are prepared with a fatty base (66 per cent. fatty matter.) Combined with gelatine they present a form of plaster *with a soluble and absorbable base*, and where the full and continued action of the combined drug is fully presented to the diseased surface. They are also clean, adhesive, light, applied by moisture, and do not have the objectionable features of extreme adhesiveness, irritation and complete envelopment of drug by the base, that prevent the use of resinous or rubber base plasters in dermal practice. Most drugs useful in dermatological practice are soluble in this base.

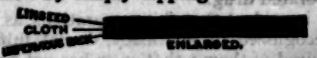
Gelatole Emulsions are an emulsion of gelatine, starch, and a bland oil (almond, olive, etc.), and glycerine, forming an emolient base perfectly unirritating to highly inflamed or raw surfaces, as well as for application to mucous surfaces in the eye, ear, nasal organs, etc.; to the urethra, vagina, anus, uterus, etc. With this may be combined such drugs as may be desired to apply, as metallic salts, lead, mercury, etc.; vegetable drugs, opium, belladonna, and witch hazel; or alkaloids, atropia, cocaine, morphine, or antiseptics.

Their consistency is of a cream, which readily softens at the heat of the body, but does not run, and the base, being perfectly bland, brings the drug into immediate and continuous contact with the surface applied.

They are put up in collapsible tubes, from which they can be most readily used. By the use of various shaped nozzles the emulsion can be carried to the anterior surfaces of the organs desired to reach.

The placing of the ointments and emulsions in tubes is a happy thought. The drug is perfectly preserved from change by action of the air, etc. They are convenient for the physician or druggist to handle and dispense;[3] the patient can readily use them, can carry them in the pocket, and as a matter of cleanliness and convenience are a vast improvement on any form of application. The nozzles can be adapted so as to reach any opening where a syringe or atomizer nozzle would reach.

Spread Poultices, or Water Dressings.—Dr. J. Nevins Hyde has suggested and had prepared a series of dressings containing starch, flaxseed, slippery elm, oxide of zinc and iceland moss, respectively. They are prepared after the manner of the well-known mustard plasters, viz: An impervious cloth back is spread with an adhesive material upon which is laid the powdered poultice material. By simply dipping in water the poul-



tice is softened, forming a desirable dressing, of service where it is desired to exclude the air, prevent external irritations from clothing, etc.; also in inflammatory affections where it may be desired to apply a simple emollient dressing. They form an efficient method of applying water, either hot or cold. Where water alone is found to be irritating, it will be greatly overcome by the soothing action of the mass of the poultice. They may also be used in the application of lotions, washes and liquid preparations to diseased surfaces.

In making the flaxseed poultice, the oily matters being extracted from the flaxseed, it *absorbs more water and retains it longer* than the ordinary poultices. They will not smear, adhere, nor injure the sound part, nor become rancid or sour. When applied warm, the nature of the compound under an impervious back causes a longer retention of the heat than poulticing by the old process. The impervious back prevents the wetting of clothing and overcomes the difficulties which often arise in applying moist dressings to various parts of the body.

The use of oil silk jackets and the untidy poultices in pneumonia, etc., is entirely obviated by using such a dressing. Being non-adhesive, no irritation will follow their application or removal.

Various uses for these dressings will suggest themselves, such as in the application of hot or cold water, as well as their special use for conveying washes, lotions, etc., in skin diseases.

NOTES ON LOCAL TREATMENT OF SKIN DISEASES.[4]

Chrysarobin.—The objectionable feature to the

[3] Ointments and similar preparations in collapsible tubes will certainly prove a boon to physicians who dispense their own prescriptions, as well as to hospitals, dispensaries, clinics, etc.—author.

[4] Compiled from the notes and suggestions of George Henry

use of chrysarobin is the disagreeable tendency to permanently discolor the skin and clothing. This tendency has been overcome in the Gelatole ointment, as, when applied and dusted with powdered starch, the clothing may be immediately put on. It can be removed with cold water. The action is full and continuous, the drug being in a soluble and absorbable form. It is therefore more convenient, cleanly and effective than the paste, collodions, varnishes, etc., now in use. Many new uses for this valuable drug are made possible with this form of application.

"In the local treatment of psoriasis, chrysarobin is without doubt a truly great remedy. As employed at the New York Skin and Cancer Hospital, it is combined with salicylic acid."—Fox.

(Gelatole ointment of chrysarobin applied by rubbing, covered with starch, will form a perfect application of chrysarobin that will not stain, and is clean and readily applied and removed.)

This remedy is an active one, and after a few applications the scales disappear, but irritation and inflammation of the skin are liable to occur from its use. A less objectionable Gelatole ointment is

Antharobin.—Its action is somewhat slower than chrysophanic acid, but does not produce inflammation, while its stains are easily removed.—Dr. G. Behrend.

Dr. Behrend and Prof. Köbner reports very favorable results in psoriasis, pityriasis, papulous syphilis and eczema maginatum from its use. The action of antharobin is greatly heightened in gelatole ointment form.

Aristol has been suggested by Dr. Eichoff and others as an active and harmless remedy in psoriasis, as well as having rapid and favorable action in mycosis lupus, and as application to ulcers, wounds and burns. In gelatole ointment it is in an active form. In the gelatole emulsion it forms a healing antiseptic and useful application.

Psoriasis.—"When the disease has passed into the chronic stage, tarry preparations should be applied after the careful removal of the scales. Ointment of tar or oil of cade may be used."—(Gelatole ointment of tar is a cleanly and effective method of applying tar in this mode of treatment.) A. Weyl, Berlin.

"The external application of the products of distillation of tar and coal, such as naphthalin and carbolic acid, have been recommended."—Kaposi.

They should be applied in the form of gelatole ointment, well dusted with powdered starch.

Hebra, after the removal of scales, applied sulphur ointment.

Carbolic acid, in the form of gelatole ointment or carbolized gauze, will allay the intense itching.

"Arsenic is an old, well-tried and efficient remedy, given either as Fowler's solution or 'Asiatic Pills,' converted into powder.

"Before the effect of the arsenic upon the eruption can be observed, the patches can usually be removed by the local treatment (chrysarobin), but the drug (arsenic) will often prove useful in preventing a relapse."—Piffard.

Dermatitis Calorica.—Burns, scalds, sunburn, frost bites, chilblains.

A very ready method of application of water is by the aid of the spread water dressings (starch preferred) dipped in cold water and frequently renewed. To prevent the formation of blisters and secure the part from irritation, gelatole oxide of zinc ointment may be applied and dusted with starch. Gelatole emulsion of oxide of lead or oxide of zinc form a grateful application. Where symptoms of irritation predominate, gelatole emulsion of boracic acid is to be preferred. On ulcerated chilblains iodoform or chrysarobin ointments are serviceable in promoting healthy granulations.

Herpes Zoster, or Shingles.—The parts should be kept clean and the drying of the vesicles aided by coating them with gelatole ointment of zinc oxide, and dusting thoroughly with powdered starch.

Where it is desired to apply a cold application, often useful in the accompanying neuralgia, it may be done by the spread poultice of starch or iceland moss, on which may be sprinkled a narcotic solution. Gelatole plaster of camphor and carbolic acid applied to the seat of pain will also give relief. (Van Harlingen uses ointment of ext. belladonna.)

Erysipelas.[1]—Those remedies for local application which enjoy the highest reputation for topical employment are: Boracic acid, salicylic acid, iodoform and resorcin. Gelatole plasters of iodoform, resorcin or salicylic acid, or the gelatole ointments of lead, sulphur, zinc, tar and carbolic acid, have enjoyed favor in the topical treatment of the disease.

Applied by rubbing, followed by dusting with starch, they form a complete covering or dressing to the part.

Here the spread poultices, such as starch, linseed meal, elm, or iceland moss will be found of service; the linseed meal, dipped in warm water, for securing a poultice action; the others as a soothing dressing that will retain moisture for a great length of time, owing to the impervious back on which they are spread.

In convalescence the warm water bath should

Fox, M.D., New York, Prof. of Diseases of the Skin, College of Physicians and Surgeons; James Nevins Hyde, M.D., Chicago, Ill., Prof. of Dermatology, Rush Medical College; Arthur Van Harlingen, M.D., Philadelphia, Clinical Lecturer on Dermatology, Jefferson Medical College; Henry G. Piffard, M.D., New York, Prof. of Dermatology, N. Y. University; A. V. N. Baldwin, M.D., New Brunswick, N. J., Curator Wells' Memorial Hospital; P. G. Unna, M.D., Hamburg; E. von Ziemssen, Munich; Prof. H. Auspitz, M.D., Vienna; Prof. R. Gielen, M.D., Budapest; Ernest Wolf, M.D., Czaslau; Prof. Ernst Schwimmer, M.D., Budapest, and others, in "Modern Methods of Local Treatment in Skin Diseases."

[1] Treatment as outlined by James Nevins Hyde, M.D., Prof. of Dermatology, Rush Medical College, Chicago, Ill.

be employed, followed by inunction with a bland ointment, gelatole emulsion oxide of zinc.

Seborrhœa (Dandruff).—In the face the detachment of the crusts is attained by a mask of strips of lint smeared with gelatole oxide of zinc ointment, either combined with salicylic acid ointment or used alternately.

Following Kaposi, carbolic acid, boracic or salicylic acid ointments would be used. When patients cannot give time to such extended treatment, the applications of the softening ointments are made in the evening, the ointment being removed in the morning.

Gelatole ointments can be dusted with starch and kept on during the day without inconvenience or objection.

Iodine in Carbuncles and Furnicles.—In an interesting article by M. Beauqueque[4] upon the antiseptic treatment of furnicles and carbuncles in general, but particularly by causing absorption of iodine into the interior of the lesions, many striking cases were reported (three of severe forms of carbuncle of the lips) successfully treated.

In iodine we have a harmless and efficient remedy, endowed with ample antiseptic power. If early applied, it is needless to say that the certainty of its abortive action is promoted. The method of applying it is a simple one. The crust or film which closes the orifices of the carbuncle having been carefully scraped off, gelatole ointment of iodine is applied and dusted with lycopodium powder.

Gelatole ointment of iodine has a much more decided action than any other form of iodine for external application; reports show that its action is four-fold greater than the various other applications. It will be found especially useful in removing glandular enlargements and morbid growths, or where the rubefacient counter-irritation or other effects of iodine are indicated. In veterinary practice it has been largely substituted for the old form of application.

Belladonna.—Gelatole ointment furnishes a new and efficient mode of exhibiting locally the therapeutic properties of belladonna. The extract and atropia are completely soluble and absorbable in the gelatole mass, giving a quicker and better effect than the salve or plaster as ordinarily found. It may be applied to any circumscribed spot on any part of the body, giving it a great advantage over plasters, etc. Applied and covered with starch powder it becomes a cleanly and convenient application.

Belladonna Plasters.—Recent research and repeated tests have shown that young dried belladonna root will yield a greater per cent. of solid extract, and that the extract itself will be much richer and more uniform in yield of atropia. By the use of wild root, obtained in one locality, uniformity of percentage of atropia in the plaster at all times is secured.

That the addition of boracic acid to belladonna plaster decidedly increases the therapeutic action of the drug, has been shown by the experiments of Drs. John V. Shoemaker, D. H. Agnew and others.

Dr. Shoemaker, in a paper read before the Pennsylvania State Medical Society, says:

"The addition of boracic acid to belladonna has an action upon the fatty matter of the skin, and renders the effect of the former drug more decided.

"It is one of the most efficient plasters for relieving recurrent patches of herpes, herpes zoster, neuralgia, and exalted and diminished sensibility of the skin.

"The boracic acid in the combination is one of the most effective antiparasitic agents for the destruction of vegetable organisms, and the belladonna acts well in relieving cutaneous irritation. The action of belladonna plaster in arresting the secretion of milk and in relieving inflammation of the breasts, is in this combination still more enhanced in its effect by the boracic acid. The absorption of the belladonna is found to take place more rapidly.

Easy Belladonna Tests.—Assays for atropia are so difficult that they are seldom applied by physicians or druggists to belladonna plasters.

The following method may be used as a ready method of approximating the amount of belladonna extract in the plaster mass, as well as to determine whether coloring (lamp black, etc.) has been added:

COLOR TESTS.—"Solid extract of belladonna root is of a dark brown color, and when mixed with rubber gums, etc., imparts the brown color to the mass, if U. S. P. ammoni is used. If lamp black has been added the shade is decidedly black. (Sometimes a green color is added to imitate the chlorophyll color of the leaves.)

"Extract of belladonna root gives its characteristic brown color to all solvents.

"A small piece of rubber belladonna plaster shaken in four or five times its bulk of benzine, will loosen the mass from the cloth and disintegrate it so that the brown color of the extract and the colors of foreign matters may be seen; lamp black appearing as a chalky black, flocculent precipitate.

"Taking the color produced by dissolving ½ gr. of extract of belladonna root, U. S. P., in 2 cen. of alcohol (either dilute or its per cent strength), as a standard test color, 2 grs. of any plaster mass, if U. S. P. strength, extracted by the same solvent, should give the same color. Time required, seventy-two hours, with shaking."

PHYSIOLOGICAL TEST.—Modified from Dr. Squibb's method:

"One gr. of plaster mass should represent ½ gr. of the extract of the root (equivalent to 1 gr. of drug). This dissolved in 500 parts of alcohol and water (may be acidulated with 2 drops hydrochloric acid), and 1 drop placed in the eye should produce a distinct dilation of the pupil inside of fifty minutes."

"These tests may be simply and roughly applied by taking an equal weight of plaster of various brands, extracting the color with benzine or 80 per cent. alcohol, and compare the results. This, supplemented with the physiological test, will comparatively determine their relative value."

Menthol.—The most familiar employment of this camphor is as a local application for the relief of pain. In some of the forms of facial neuralgia and so-called rheumatic pains the remedy is of real service. In pruritus also the analgesic properties of the drug have been turned to good account. It is employed for this purpose in ointment form.

Drs. Cholewa and Malcolm Morris strongly commend the use of menthol ointment for its analgesic action and bactericidal properties. Still another use for the remedy is in the treatment of

[4] Revue Générale de Clinique et de Therapeutique, 96, 89.

furunculosis, and more especially of furunculosis of the external auditory canal. Here the bactericidal properties of the drug, as well as its analgesic action, come into play.

Ringworm of the scalp is said by Dr. Malcolm Morris to yield promptly to applications of menthol.

Menthol Ointment.—The effects of the gelatole ointment of menthol are deeper and more lasting than the well-known pencils, and more convenient for application. Menthol has been reported as having powerful absorptive effects upon new cell infiltrations. Local pain, itching and swelling are greatly lessened after its use.

In the treatment of various affections of the upper air passages, also, good results have been obtained by local applications of menthol in the form of gelatole emulsions. Rosenberg and others have claimed quite a large percentage of cures of laryngeal phthisis by this means. In this country Potter, Knight and others report very decided improvement after the use of menthol in this disease. In nasal and laryngeal catarrh much benefit is often derived. Dr. C. L. Dana has so employed it, with fairly satisfactory results, in migraine, supraorbital neuralgia, and anæmic headaches. We might well be justified in placing menthol among the most valuable of the minor therapeutic agents. In the gelatole emulsion form it can readily be applied to the mucous surfaces, nasal organs, throat, and to urethral and uterine surfaces.—Ed.

Mercury.—Mercury has probably the widest range of usefulness in its application to very many diseases of the skin.

In the Gelatole ointment form a much more cleanly, elegant and effective form of application is presented. The mercury being exhibited in soluble form, readily permeates the integument.

The germicidal action and the absorption is greatly augmented. The ointment of metallic mercury has been found of service in all circumscribed pigmentary deposits, especially in freckles and chloasma lupus patches, acne spots, enlarged glands, scars, hardened and infiltrated spots, spots of the skin from boils, carbuncles, etc., and as well as of use in syphilitic patches, ulcers, chancres, chancroids, scrofulous spots, etc.

In Acne any comedones present are expressed; those inflamed into papules are caused to mature by covering with mercurial ointment (or iodide of mercurial ointment).—Method of E. Lasser, M.D., Leipzig. In certain cases mercury seems to act better than other preparations.—Van Harlingen.

Mercurial Treatment of Syphilis.[7]—The early rashes of syphilis are best treated, in my judgment, by mercurial inunctions, both during their active and chronic stages.

The inunction of mercury in infantile syphilis is always preferable to its internal administration.[8]

The gelatole ointments of mercury are:

Metallic mercury, 10 per cent.
Red iodide mercury, 3 per cent.
Yellow oxide mercury, 5 per cent.
Red oxide mercury, 5 per cent.

They are put up in collapsible tubes, specially made, and lined to prevent contact of the mercury with the metal of the tubes.

They are readily absorbable forms of mercury, and will be found to produce marked results where the peculiar effects of this drug is indicated.

Boracic Acid.—Dr. Geboricz (*Weiner Med. Presse*) commends a more general use of this as odorless and absorbent of all odors. The ointment can be used advantagequsly in abscesses, ulcers, caries, and necrosis of the bones, and complicated fractures. In anthrax and after incision of furnicles.

Gelatole Emulsion Boracic Acid.—In burns when the flesh is exposed poisonous antiseptics must be used with caution. Boracic acid, being non-poisonous, would meet the indication. The gelatole emulsion is a perfectly non-irritating and emollient force, it has also been found of service in glandular conjuctivitis, in pains, etc.

Emulsion Boroglyceride gives a non-poisonous antiseptic and forms a useful application and addition to washes and lotions.

Dr. Theo. Veiel suggests the use of boracic acid ointment to relieve itching, especially in eczema intertrigo. For the face a mild lotion of Witch Hazel (gelatole emulsion—Ed.) may be kept applied to the affected skin by the means of saturated absorbent cotton or gauze bandages; and a mild stimulating ointment is advisable (oil of cade).

In herpes progenitalis, gelatole ointment of boracic acid should be used for its healing, antiseptic and detergent properties. Borated cotton should be used to dress the lesion.

Diachylon Ointment.—Hebras ointment, so universally prescribed, has always been a source of trouble on account of its unstability having a tendency to become rancid, harden and rendered useless. In the gelatole ointment form the tendency to harden, change or spoil is overcome. To highly inflamed surfaces, as a protection against the action of air, etc., it forms an excellent mild and healing dressing.

A substitute for Unna's lead plaster mull mask may be made by smearing lint with gelatole oxide of lead ointment, or by simple anointing with gelatole oxide of lead ointment and dusting with starch.

Hyperhidrosis, or Excessive Sweating.— Geber found excellent results from the use of the antiseptic ointments such as ointment of naphthol,

[7] Some Practical Points in the Treatment of Syphilis, by R. W. Taylor, M.D., Professor of Dermatology in the New York Post-Graduate Medical School; Surgeon to the Charity Hospital, New York.

[8] John A. Larabee, "Infantile Therapeutics." Professor of Diseases of Children, Hospital College of Medicine, Louisville, Ky.

carbolic acid, salicylic acid, etc., rubbed well in at night and dusted with powdered starch.

Hebra's method, is in a modified form as follows: The foot is first washed clean, carefully dried with salicylated cotton; then thoroughly envelop the parts with gelatole diachylon ointment and well covered with starch, when it may be wrapped in flannel or a clean woollen stocking. This should be repeated in twelve hours without washing the part, simply wiping with absorbent cotton. The process to be continued two or three weeks.

Sulphur.—In the gelatole ointment form, a new impetus is given to the use of sulphur; the drug being held in an emulsified state, is far more active than in the ordinary state; its stimulant properties are fully manifest, and for the various purposes for which it is applied to the skin, its value is greatly enhanced. In this form it can readily be applied to the diphtheritic patches, as a stimulent application in sciatica, rheumatism, syphilis, as in this preparation absorption of the sulphur is made possible.

In *acne* when development of the papules is no longer manifested, gelatole sulphur ointment should be applied as a stimulating application and should be continuous. Gelatole ointment of sulphur may be made a continuous application day and night by covering the diseased portion with a light coat, then with starch lightly applied by dusting; the application would scarcely be noticed and would arouse no objection from the patient. Gelatole ointments thus applied and dusted, makes a less noticeable dressing than ordinary face powders or complexion lotions.

In *erythema* of the leg simulating erysipelas gelatole ointment of sulphur, 20 per cent., gives speedy relief. In twelve hours after the first application the heat had subsided and the patient was comfortable.—Dr. W. F. Waugh in *Med. Times Register.*

In *scabies* the drug being in solution more readily permeates the epidermis and burrows of the nutes.

In recent cases smearing the hands at night with the ointment, then covering with powdered starch, may suffice; but when of long standing, before going to bed, the patient may remain for a quarter of an hour in a warm bath, accompanied with a brisk friction with soap, then applying the ointment, dusting with starch, to the whole body (except the head).

"If the eruption is seated on a delicate skin, baths may be discarded, the ointment used with great care, and continued only for a few days at a time."—Fox.

Salicylic Acid.—The antiseptic action of salicylic acid, its power in the local treatment in sciatica, muscular rheumatism, is presented in a most marked degree in the gelatole ointment. The property of salicylic acid to macerate and soften the epidermis is readily exhibited in the ointment, and makes it especially useful in softening and removing crusts, scales, callosities, and in reducing hardened and ulcerous conditions.

For aborting boils Dr. Louis J. Heitzman speaks very highly of salicylic acid plaster.

Ointment of salicylic acid, well rubbed into the skin and dusted with starch, may be employed instead.—Van Harlingen.

In psoriasis, when the patches are large and scaly, salicylic acid ointment well rubbed in will remove the scales readily and give opportunity for making healing applications.—Van Harlingen.

For eczema of the scalp, where there is a slight thickening of the skin, a little gelatole salicylic acid ointment may be rubbed in the scalp with the finger every night and morning, and when the itching is very annoying ointment of naphthol may be advantageously employed.—Fox.

In acute eczema, after cleansing, Dr. Lasser applies immediately salicylic acid ointment and covers with powdered starch.

Dr. A. V. N. Baldwin, Curator Wells' Memorial Hospital, New Brunswick, N. J., has had marked success with the following method:

"The parts affected are first cleansed with a solution of green soap in warm water, dried by carefully pressing with absorbent cotton or lint, taking care to avoid rubbing or producing the slightest irritation, or inflame in any degree; then pieces of gelatole plaster of salicylic acid are cut and fitted so that the part will be well enveloped. After moistening the plaster well in warm water and allowing it to remain a moment so as to become soaked, it is laid over the part, not pressed in place, but slightly laid on, and bound with a light bandage. As soon as the plaster adheres, the bandage is removed.

"At the end of twenty-four hours, the plaster is removed by the aid of green soap and warm water.

"If the whole of the affected portion is not clean and free from disease, the operation is repeated as before.

"If the disease is extended over much surface, one limb or one portion of the body is usually treated at one time, and the same line followed until all portions are treated."

(Klotz employs salicylic acid plaster, except in highly inflammatory conditions.)

Eczema of the feet may be similarly treated. "A horny condition of the soles may be advantageously treated by the application of salicylic acid ointment or plaster. The plaster is applied in the form of strips moulded to fit the skin closely without folds or wrinkles; they may remain twenty-four hours to several days. The softened epidermis is scraped away, the operation repeated until the horny epidermis is removed to a great extent, after which an ointment is applied."—Van Harlingen.

In dandruff or baldness therefrom, after cleansing the scalp, Dr. E. Besnier applies salicylic acid every morning.

When gelatole ointments are used, they can be dusted with starch and kept on during the day without inconvenience or objection.

In Favus. In obstinate cases the hair is first cut as short as possible, and the crusts removed. This process should be aided by the application of the spread poultice of linseed, well wetted and applied warm, gelatole ointment of salicylic acid to be applied morning and evening by being well rubbed into the parts, and dusted with powdered starch.

In Ringworm. On the general surface of the body where the hairs are fine or absent, scrubbing with green soap will remove the disease, especially aided by the application of a parasiticide, as ointment of salicylic acid; to secure beneficial action it must be applied with great frequency, as the parasitic spores multiply with great rapidity, and no time should be lost between the applications."—Fox.

In the gelatole ointment form the drug is continually in contact with the diseased skin.

Thapsia, of late date, has been employed in the form of French plaster, where it was combined with yellow wax resin and turpentine. American manufacturers have prepared it by combining with a rubber base.

In the plasters the drug is apt to be rendered inert by age or decomposition of the mass, or by the volatilization of active principles of the resin.

When fresh, the eruption produced has a great tendency to spread, making it difficult to confine the sphere of its action within desired limits; it may also produce an action of a severe and painful character.

In the gelatole ointment of thapsia these objections are overcome; the specially prepared resin (from Thapsia Garganica) is held by the ointment in a perfectly active and soluble condition, so that its action is manifested in from three to six hours; whereas the best plasters require from twenty-four to thirty-six hours.

The action may also be confined to the exact spot covered.

Special Note.—The action of Thapsia may be stopped, the itching and irritation controlled perfectly by the application of hot water, as hot as can be borne.

As the ointment can be washed off with cold water, its further action can be stopped at any time.

"Regarding its mode of action, thapsia may be classed among the most vigorous counter-irritant and revellent remedies. Its influence is undoubtedly chiefly extended by the active determination of the blood, which it excites from the deeper structures to the surface."—Dr. Porter.

"This drug has special value in muscular and rheumatic pains of long standing, in which other remedies have failed to give relief."

A useful application to the chest in the irritation and painful cough of phthisis and chronic bronchitis, especially when accompanied by difficulty of breathing.

"On theoretical grounds the drug should act beneficially in promoting the absorption of pleuritic fluid and in favoring resolution in phthisis."—Dr. James K. Crook.

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